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New Orleans Medical

and

Surgical Journal

89

Vol. 90 AUGUST, 1936 No. 2

AURICULAR FIBRILLATION*

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Auricular fibrillation is one of the most common, most interesting, and most important irregularities of the heart. Through the work of Mackenzie, Rothberger, Winterberg and Lewis, its exact clinical status and mechanisms have been established.

The present conception of the abnormal mechanism, responsible for auricular fibrillation, is that of circus movement or a contraction wave continuing to circulate around a band of muscle. This conception explains both auricular flutter and auricular fibrillation, with the distinction that in flutter the contraction wave follows a more orderly course. The rate of circulation of the excitation and contraction wave in the auricular muscular circuit in auricular fibrillation is very rapid, averaging about 500 per minute, and varying between 400 and 600. The ventricular response to this abnormal auricular mechanism is grossly irregular and usually rapid, at about 150 per minute. The ventricular response may be much slower as the result of drug therapy or partial or complete A. V. block.

Auricular fibrillation may occur in the absence of organic heart disease but it occurs more often in the presence of organic heart disease. It is not due to any particular type of pathology or as White[1] states, "There is no pathology characteristic of auricular fibrillation". As demonstrated by Yater,[2] it may be found with various degrees of pathologic changes but in the presence of the same or more extensive pathology, auricular fibrillation may not occur. It appears to be, therefore, a physiologic abnormality occurring most frequently in hearts that are damaged by disease. Its mechanism is one of abnormal conduction in the auricular muscle dependent upon: (1) morbid structural changes in the muscle fibers; (2) alterations in the nutrition and metabolic processes of the auricular muscle; (3) possibly nervous influences or increased vagal tone.

According to most observers it occurs most frequently in the rheumatic and arteriosclerotic types of heart disease. The following table gives the incidence as reported by various observers:

	Rheumatic	Arterio-sclerotic	Thyroid	Hyper-tensive	Syphilitic	Miscellaneous
Stroud	48	35	3.5	—	9	4.5
Cookson	69	22	7	—	2	—
McEachren and Baker	34.4	48	8	—	3	7
White	45.8	21.4	—	4.3	—	—

In a small group of 37 cases, seen at the Shreveport Charity Hospital and definitely proved by electrocardiographic studies, the incidence in the various types of heart disease was: rheumatic five, or 13.5 per cent; arteriosclerotic and hypertensive 23, or 62.2 per cent; syphilitic two, or 5.5 per cent; thyroid four, or 11 per cent; toxic three, or 8.8 per cent, (alcoholic one, pneumonia one, pregnancy one). It is evident that the essential difference in incidence as found here and elsewhere is due to the difference in incidence of the types of heart disease, particularly rheumatic heart disease.

In our series, as generally found elsewhere,

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

males predominated 27 to 10 and the greatest incidence occurred in the fifth and sixth decades. The average age in the different groups was: rheumatic, 36.2 years; arteriosclerotic and hypertensive 65.3 years; syphilitic 34.5 years; thyroid-toxic adenoma three, average age 47.7; exopthalmic goiter one, age 34 years; and toxic three, average age 51 years. Few cases have been reported in the first and second decades. In our group, two cases occurred in the third decade, one rheumatic and one syphilitic.

It was difficult if not impossible to judge the onset of fibrillation in our group, but with one exception, all were fibrillating on admission. The duration of symptoms varied from one week to eleven years. In the thyroid group, with toxic adenoma, symptoms of fibrillation were present for three years, seven years and eight weeks, and in the exopthalmic goiter, for three months. In the rheumatic group they varied from two months to eleven years, average duration three years and five months, and in the arteriosclerotic-hypertensive group, from two weeks to seven years, average duration, eighteen months.

Congestive failure was present in 32 of the cases and a definite enlargement of the heart, of varying degree, in 29. There was a history of substernal distress, anginal in character in four cases, all of the arteriosclerotic-hypertensive group, and one of these had such an attack while on the ward. Apparently true angina is rare during fibrillation, and if formerly present may cease after the onset of fibrillation.

An acute respiratory infection seemed to be the precipitating factor in eight cases. These had either recently had such an infection or had same on admission. They were all apparently able to carry on their usual occupation prior to the respiratory infection, but either during the course of same or immediately afterwards, they developed congestive failure with auricular fibrillation. Lewis and others have pointed out repeatedly the relationship of acute respiratory infections to congestive failure and cardiac irregularity.

The electrocardiographic findings in addition to the fibrillation showed changes in the QRS complexes and T waves dependent upon the associated myocardial disease. Ventricular premature beats were found in 16 cases, occasionally occurring frequently and not due to medication. Runs of auricular flutter in one or more leads was present at some time in five cases. In one case, a colored female, 46 years of age with a toxic adenoma and auricular fibrillation with congestive failure, who was treated by roentgen ray therapy to the thyroid, and digitalis, there was found during a period when sinus rhythm was restored, sino-auricular block, which persisted for a few days.

Auricular fibrillation is usually considered, and quite properly so, as a serious complication. Certainly its development with organic heart disease adds to the gravity of the case. White[1] gives two to three years as the average duration and Willius, in a group of 173 fatal cases, found the average duration one year and three months. Stroud, Laplace and Reisinger,[3] in a review of a series of cases, found that in the rheumatic and arteriosclerotic group, the average duration was two and one half years, among those now deceased and three and one half years among those still living. In the group with no apparent etiologic nor clinically demonstrable cause for their auricular fibrillation, the average duration of life was two to three and one half years. In our group the duration of symptoms for the entire group was 20 months, in those that expired 15 months, and in those still living, 22½ months. Apparently auricular fibrillation alone offers very little indication as to life expectancy since it depends upon the degree of competence of the myocardium. This is exemplified by a study of a series of cases of auricular fibrillation and flutter by Orgain, Wolfe and White,[6] in whom there was no demonstrable evidence of organic heart disease. In their conclusions they find that the prognosis for life and for maintenance of adequate cardiac function is good and that the outlook for future improvement manifested by a decrease in frequency or a complete cessation of paroxysms is frequently good.

In this group of 37 cases, nine expired in the hospital: syphilitic two, rheumatic two, arteriosclerotic and hypertensive three, thyroid one and pregnancy one. Of these only one

death, that following pregnancy, was perhaps primarily due to the auricular fibrillation. She expired suddenly probably due to an embolus. The remaining eight cases all had evidence of myocardial disease, hypertrophy, valvular disease or coronary sclerosis. Autopsy was performed on four cases, in three of whom the findings were those usually associated with congestive failure, while in the other mesenteric infarction with hypostatic pneumonia was present. Of the five on whom autopsy was not performed, one died suddenly as mentioned above, but the other four expired as usual in congestive failure. The duration of symptoms in the nine cases, varied from three weeks to five years, averaging 15 months.

The two cases of auricular fibrillation occurring in syphilitic heart disease were both colored males. One was 42 years of age and had been in the hospital on two occassions for congestive failure and was fibrillating on the last admission. He expired and at autopsy an aortic aneurysm, syphilitic aortitis with dilatation of the annulus fibrosis, aortic insufficiency, and slight hypertrophy of the heart were found. The immediate cause of death was congestive heart falure and multiple pulmonary infarcts. The second case was 27 years of age and had been admitted to the hospital on three occassions. He apparently developed auricular fibrillation during the latter part of his last admission. He also expired and autopsy showed marked hypertrophy and dilatation of the heart secondary to aortic insufficiency and syphilis of the aortic valve with destruction of one of the cusps. The relative infrequency of auricular fibrillation in syphilitic heart disease has been frequently noted and here, where we encounter syphilitic heart disease so frequently, it is still relatively rare.

McEachern and Baker[5] have pointed out that in such cases as these, digitalis may have caused the fibrillation. Both of these patients had been in the hospital for two or three months, and on small doses of digitalis during that time. One was definitely fibrillating on admission, but the other apparently developed fibrillation while on the wards and may have been due to digitalis therapy.

TREATMENT

The aim of treatment in auricular fibrillation is the prompt restitution of the maximal degree of circulatory efficiency. Since auricular fibrillation may occur in different types of heart disease, in congestive failure or not, different types of treatment may be indicated. Formerly our one drug was digitalis, but in 1918 Frey introduced quinidine therapy as a treatment of auricular fibrillation. Like many new drugs, it was received with enthusiasm but time has not increased that enthusiasm.

The beneficial effect of quinidine therapy is due entirely to the conversion of auricular fibrillation to regular sinus rhythm. This is due to its direct action on the heart muscle, slowing conduction and lengthening the refractory period. It is when the latter, lengthening of the refractory period, predominates that regular sinus rhythm is restored. Digitalis exerts its beneficial action in auricular fibrillation by slowing conduction both in the muscle and the conduction track, but largely in the latter. With slowing of conduction in the A. V. node, fewer stimuli are allowed through and as a result, the ventricular rate is reduced.

In addition, there is the direct effect on the heart muscle tone and completeness of contraction, and thereby increasing cardiac efficiency and relieving congestive failure.

As experience with the use of quinidine has increased, its definite limitations have become more fully appreciated. It has been shown that quinidine is successful in establishing sinus rhythm in only about 65 per cent of selected cases and that the duration of the established sinus rhythm even with continuation of treatment is about one and a half years. More important still is the observation that the average duration of life following the onset of auricular fibrillation was only slightly over a year longer than that of the patients who were considered unsatisfactory for quinidine therapy and exactly the same as that of the patients who had received quinidine but without the restoration of normal sinus rhythm.

Apparently the irregularity per se, does not cause a great deal of circulatory embarrassment. According to Lewis,[9] it is the uncontrolled state of the heart in exercise which constitutes the most serious feature of fibrillation, but the same hearts with sinus rhythm show a similiar high ventricular rate after ex-

ercise with a slow or delayed return to normal. Generally, these hearts function best with their fibrillation controlled by digitalis.

Levine[4] has pointed out that there are certain untoward effects following quinidine therapy. Quinidine intoxication may occur and the induction of heart failure has been attributed to quinidine in a few cases, apparently due to the accelerated ventricular rate. There have also been reported cases of sudden and temporary collapse with loss of consciousness and failure of respiration and even sudden death. According to Levine,[4] the explanations offered for this phenomenon are ventricular fibrillation, cardiac asystole due to failure of the S. A. node to function when fibrillation ceases, heart block and marked vagal stimulation. The occurrence of embolism following the restoration of sinus rhythm has been stressed. Auricular fibrillation predisposes to the formation of clots in the auricular and the return to normal auricular action favors the detachment of such clots.

In this group of cases, quinidine therapy was tried in 14 cases and was successful in restoring sinus rhythm in only two. The two cases in which sinus rhythm was restored were due to thyroid disease and alcohol, probably the only cases distinctly suitable for quinidine therapy. The thyroid was a toxic adenoma in a woman 50 years of age who continued to fibrillate after partial thyroidectomy. Quinidine sulphate, 30 grams a day promptly restored sinus rhythm. The second case was in a white male 52 years of age who had paroxysmal auricular fibrillation following alcoholic debauches. He had been on a spree for several days prior to admission and was admitted with auricular fibrillation and malaria. Quinine therapy for malaria had no effect on the fibrillation, which was controlled by digitalis. After the malaria had been controlled he was given quinidine which promptly restored sinus rhythm. Neither of these two patients had any appreciable amount of myocardial disease but the other twelve cases had various degrees of hypertrophy and myocardial damage. Therapy in these cases was administered on different services but was generally adequate and usually followed digitalization. In one of these cases, a white male, 45 years of age with arteriosclerotic and hypertensive heart disease, sinus rhythm was restored for a few days but under continued treatment reverted to fibrillation. No effect whatever was noted in the remaining cases. These cases on whom quinidine was unsuccessful and the others were benefitted by digitalis therapy.

It has been pointed out by McEachern and Baker, that digitalis may produce auricular fibrillation particularly in patients with advanced heart failure. None of these cases of fibrillation were due definitely to digitalis medication and the only toxic effect of digitalis noted was the appearance of extrasystoles and coupled rhythm. Coupled rhythm developed in one case, a white female, 28 years of age, with rheumatic heart disease who was taking a daily dose of three grains of digitalis, but promptly disappeared on stopping the drug.

This group of cases is entirely too small and inadequate to judge of the relative merits of digitalis and quinidine in auricular fibrillation, but partly from it and largely from the experience of others we can reach some conclusion. Concerning quinidine it can be said that it is indicated in a relatively small group, paroxysmal fibrillation in order to avoid the attacks, in thyroid cases that continue to fibrillate after adequate treatment of the thyroid gland, those cases due to definite toxic factors that continue to fibrillate after removal of the toxic agent, and in those cases of fibrillation in which the heart is apparently normal. Quinidine may be tried in some cases of the chronic type controlled by digitalis whose chief complaint is intractable palpitation. Certainly in chronic fibrillation when there is failure of compensation, damaged hearts with valvular disease, and hypertension, digitalis is the drug of choice.

CONCLUSIONS

Auricular fibrillation occurs frequently and most often in arteriosclerotic-hypertensive and rheumatic heart disease.

It is due to no particular type of pathology.

Life expectancy after developing fibrillation is relatively short.

Quinidine is indicated in a limited number of cases.

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DISCUSSION

Dr. W. S. Kerlin (Shreveport): You will remember that in the first paragraphs of Dr. Hargrove's paper he mentined the fact that the series of cases he has reported was observed in Charity Hospital Shreveport and that the average duration of life was about 22 months. That was the prognosis for that series of cases, however it does not necessarily mean that the prognosis is the same in private practice, dealing with private patients. However, as brought out, Dr. White and others have reported an average duration of five or six years and that auricular fibrillation should always be considerd a very serious disease. However, there are a number of cases reported that have lived for years, and Dr. Hargrove reported Dr. Stroud as saying that it was not the irregularity that denoted the weakness of the heart muscle, but the amount of rest that patient gets during the course of the disease in the lessening in frequency or cessation of the paroxysms. This is illustrated by a case I observed in 1921, an elderly lady, 65 years of age, when first I saw her. She had at this time marked decompensation of the heart and said her heart had been irregular for 15 years prior to 1921, and that she had decompensated at intervals and was in an extreme state of decompensation. She is 80 years of age today. I have observed her frequently. She has obtained the proper rest, and I believe in these cases where decompensation is likely to occur, digitalis does good, that is in maintenance doses of a grain and a half a day, it obviously prolongs those patients' lives and makes them more comfortable. Whenever this patient would cease taking digitalis she would immediately decompensate, and by resuming digitalis at my suggestion it made her very comfortable. I do believe that digitalis in maintenance doses should be kept up, especially in chronic fibrillation cases. Just in the last year I saw a typical facial paralysis and I thought at the time it might be due to a slow leak; later I felt it was due to a cerebral embolism. That is not an uncommon complication in cases with a tendency to congestive heart failure. This patient is getting along in years and is still in comparative comfort and says he is going to live for a much longer period of time.

Dr. Edgar Hull (New Orleans): When Dr. Hargrove closes his discussion I should like for him to indicate the etiologies in his miscellaneous group. Usually auricular fibrillation is associated with coronary sclerosis, thyrotoxicosis and mitral stenosis, and in the Heart Station in Charity Hospital, practically all fibrillations fall into those three groups. In the wards of the hospital, however, we frequently see clinical fibrillation which is transitory, which lasts only a few hours or a day or two, and which clears up. We see this in various toxic conditions, particularly in pneumonias. I saw one the other day in a patient with obstructive jaundice, another a few weeks past in an elderly lady with bronchitis. Since these fibrillations disappear spontaneously, we digitalize only if the heart is failing or if the rate is exceedingly rapid, and never give quinidine to these patients.

Dr. John H. Musser (New Orleans): Just a word, as this is to a certain degree an experience meeting.

I have had a patient under observation for 25 years who has had fibrillation steadily all that time. Bear in mind, however, that is slow fibrillation, between 70 and 80, not the delirium cordis of the old days.

Dr. M. D. Hargrove (In conclusion): I think Dr. Kerlin's point about the prognosis of this group of cases, where they are found, is of considerable importance. All came out of Charity Hospital (Shreveport) and naturally, the conclusions would not apply so well in patients treated in private practice.

We see the cases, the particularly slow types that Dr. Musser mentioned, treated for years.

Dr. Herold will remember the engineer on the L. & A. railroad who had been fibrillating for years.

As to the miscellaneous group Dr. Hull inquired about: one patient's condition was due to drinking of alcohol; one developed it during pneumonia and reverted to regular sinus rhythm and the other might be considered post-partal of toxic heart disease. No definite etiologic diagnosis was made.

CORONARY OCCLUSION*

MELVILLE W. HUNTER, M. D.
MONROE

In 1910, two Russians, Obratzow and Strascheko, associated the clinical syndrome, as known now, with coronary occlusion. It was not until 1925 that either the British or American physicians began to investigate the subject to any extent. So, for practical purposes, our knowledge of this condition dates back less than eleven years.

PREDISPOSING FACTORS

The disease is primarily one of the arteries, that is sclerosis of the coronary arteries. Frequently it is associated with generalized arteriosclerosis and hypertension, but in many instances the changes seem to be in the coronary vessels alone. It is in this latter type that the attack is unexpected by both the physician and patient. Since the disease occurs with greatest frequency in the business man and not the laborer, it is evident that mental stress and strain, as well as the constitutional make-up of the individual, play an important part in precipitating attacks.

Diabetes is said to be a predisposing cause, 7 per cent of diabetics are said to die of coronary occlusion.

Syphilis plays only a minor part as a causation factor of true occlusion. It is extremely rare that syphilitic aortitis of the coronary vessels is noted.

Emboli may strike the coronary vessels as they do any other vessels.

Tobacco is said by some to predispose to coronary sclerosis. This is doubted by many. However, the use of tobacco in one suffering with coronary sclerosis frequently gives the angina pain.

Alcohol has been blamed by some, but no satisfactory proof has been given as to the part it plays in sclerosing the coronary vessels. Coronary occlusion predominates in the male. In Levin's series of 145 cases, 111 or 60 per cent were males. Parkerson reports 93 per cent males. In my 32 cases, 25 or 79 per cent were males. Age incidence: In Levin's 145 cases, the average age was 57.8, only 3 under 50. In my 32 cases, average age was 54.5. Ten cases occurred between 40 and 50, 12 cases between 50 and 60, 9 cases between 60 and 70, 1 patient was 82 years old.

PATHOLOGIC CHANGES

When the blood vessel is suddenly blocked the area of myocardium supplied by that vessel is set into a state of disturbed chemical balance and becomes more irritable. This irritable infarcted area is the site of origin of ectopic beats. Often the foci are multiple. Depending on the number and distribution of these foci depends the probability of ventricular fibrillation developing. Ventricular fibrillation usually proves fatal in a short time. Depending upon the size of the branch occluded will be the size of the area of necrosis. The microscopic and macroscopic picture of this area will be that of a sterile necrosis in any tissue, that is a sterile gangrene or sterile abscess which will heal as elsewhere with swelling, softening, sloughing and absorption, then granulation tissue and finally scar tissue. There is no need in this short paper to discuss the most frequent locations of the occlusions or infarcts or by what means the scar tissue receives its blood supply.

The point I wish to bring out forcefully is that immediately following the infarction the tissue is stronger that it will be 24 hours later. After the relief of the acute pain and shock, if the patient is seen at his home or out of town, the physician should make his decision whether or not to make a hospital or home case of the patient. I believe that at this time the patient can be moved in an ambulance even 25 or 30 miles with little or no mental or physical strain, and with less chance of causing cardiac dilatation or rupture of necrosing area, than at any time within the next eight or ten days.

SYMPTOMATOLOGY

We are all familiar with the clinical picture of acute coronary occlusion presenting a history of substernal pain or oppression, after exercise or eating, the pain radiating to the neck or down the left or both arms. Such a history is usually obtained in most cases seen in the acute attack. The acute attack presents a patient in agony and frequently in collapse or shock, com-

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

plaining of violent pain in the precardiac region, said pain radiating to the neck or down left or both arms. This pain is not relieved by the nitrites. The blood pressure usually shows a marked drop from that ordinarily carried by the patient. The pulse is slow and in 40 per cent of the cases is irregular, the irregularity being either ectopics or block. In 24 hours there is a rise in temperature, usually 99 to 100°, and the leukocyte count rises to 10,000 or 15,000 with an increase in the polys. A friction rub in heard over the heart in many cases in 48 hours and disappears in 72 hours. This is briefly the classical case.

Let us think a bit of the atypical case. The cases of so-called acute indigestion of middle life, or past middle life, are now not considerd atypical because of their frequency. These cases are usually diagnosed as coronary occlusion even by those with little experience with the disease. I wish to cite two cases which I have seen in the last few years which exemplify the atypical phases of the disease.

CASE REPORTS

Case 1. May 26, 1934, I was called at 5 a. m. to see a white male, aged 50 years, occupation planter. He was out on the front porch gasping for breath, blood pressure 70/70 and in a state of shock, giving a history of having been an excessive eater with indigestion after eating for the past 20 years. For the past week he had had rather severe attacks of indigestion, necessitating morphine and rest in bed. His physician, suspicious of peptic ulcer, sent him to Monroe for gastro-intestinal roentgen rays, which were made May 24 and 25. These pictures demonstrated a well defined duodenal ulcer. On the night of May 25, his physician had given him large doses of analgesics with little relief. Coronary occlusion was the diagnosis and he was hospitalized, the electrocardiogram showing the classical curve of occlusion. Thus we see two separate conditions which may give a similar clinical picture both being present at the same time.

Case 2. White male, aged 42 years, occupation, civil engineer, was first seen by me November 2, 1932. He had been in perfect health and had gone hunting, walking five miles or more. On returning to town he tried to start his car. The starter did not work, so he cranked the car and drove home. In about fifteen minutes he developed a severe pain in the right shoulder, right arm and right and left pectoral regions. He felt exhausted. His physician gave him one-quarter grain of morphine, but he did not get any better. I saw him with his local physician. His blood pressure was 140/90, previous reading being 160/90. The heart was regular and no abnormalities noted; temperature was normal. The question of coronary occlusion was considered but was almost ruled out. We decided to await further developments, treatment being symptomatic. Throughout the night the pain persisted, and he needed morphine on three occasions. The next morning his temperature was 99.2; the heart rate was 76, irregular, apparently ectopic beats, and blood pressure was 100/70. It was evident then that we were dealing with coronary occlusion. An electrocardiogram verified the diagnosis.

Each month the current literature gives histories of atypical cases, many resembling the acute abdomen. A careful history, a little observation and the electrocardiogram, will prevent many errors. We have occasional cases of occlusion with dyspnea, or cardiac edema without pain. These are rare but should be kept in mind. The diagnosis is made by the electrocardiogram or not at all.

TREATMENT

From the therapeutic standpoint, acute coronary occlusion can be divided into three distinct stages: First, the stage of onset or shock in which the symptoms of pain, prostration and shock are present. This covers the first 24 hours; second, the intermediate stage, lasting from the second day to the fourteenth day, during which time there are the signs and symptoms of necrosing heart muscle; third, the stage of convalescence extending from the fourteenth day to four or eight months. This is the stage of healing or recovery.

Let us consider the treatment of the first stage. In this stage the primary object is to relieve pain and shock. Morphine in large doses often two to four times the usual dose, is indicated for the relief of pain and mental anxiety and to produce rest. Morphine in large doses not only relieves pain but is a cardiac sedative. Next in importance is the control of shock if present. This is taken care of in the usual manner of combatting shock, with one exception, the head in place of being lowered is often raised and the patient elevated upon a back rest. It is at this point, that is, after the relief of pain and immediate shock, that it should be decided whether or not the case should be treated at home or hospitalized, for bearing in

mind the pathology it is evident that the infarcted area is stronger in the first twenty-four hours than a few days later and, likewise, following the relief of severe pain the patient presents no opposition or anxiety in being hospitalized. It has been my policy to recommend hospitalization, even if the patient has to travel 25 or 35 miles. In my experience the hospitalized cases have done better than those treated at home. After the initial relief, the following plan has proved of value. Blood pressure readings are made every one or two hours for the first 48 hours and a marked fall in blood pressure, that is a systolic pressure of 80 or below, or fall in pulse pressure, that is a pulse pressure 10 mm. of mercury or less, should be treated by 25 to 50 c.c. of 50 per cent glucose by vein. This is repeated every two to four hours as indicated. I believe this is the most valuable cardiac stimulant for this type of case. On a number of occasions I have found the blood pressure to vary markedly in a few minutes and those cases which did not respond to the 50 per cent glucose did not terminate favorably. The residents at the Sanitarium and I have followed this routine with gratifying results and I have lost a few patients treated in the homes and in the country in whom this routine of frequent blood pressure readings had not been followed. Other stimulants, such as adrenalin, caffeine, sodium benzoate, coramine, or camphor in oil, have all proved of value at times. Care must be taken not to raise the blood pressure too high, as we then favor rupture of the heart. Digitalis is not indicated except for myocardial failure, which is rare. Digitalis increases the irritability of the ventricular musculature and increases the danger of ventricular fibrillation. Quinidine is recommended highly by Musser as a prophylaxis for ventricular fibrillations. It should be started in the first twelve hours. Euphyllin, metaphyllin, aminophyllin theominal, or one of this group, should be started within a day or two and kept up indefinitely.

The intermediate stage, from 24 hours to 14 days, usually finds the patient slowly improving, the pain being relieved. Nausea seems to be the greatest obstacle to be overcome. Gastric lavage must be avoided because of the straining. The usual gastric sedative takes care of the condition. Alcoholic drinks have proved of value in these cases.

The diet in the first 24 hours is usually nothing but liquids, but is slowly increased to semisolid and finally a full diet. The use of oxygen, preferably administered by means of the oxygen tent, has at times proved life saving in the relief of anoxemia.

The bladder must be watched for distension and catheterization is frequently necessary and is preferable to straining. Let us be doubly careful in our sterilization of catheters and technic, as we are frequently dealing with patients who are suffering with a chronic prostatitis and in a few of my cases acute cystitis with chills and temperature 105° followed catheterization.

In reference to the care of the bowels let me state that I have seen some cases of coronary occlusion die, I believe, the purgative route. The patient having so-called acute indigestion, the family or neighbors gave him large doses of calomel, oils and salts, thereby producing frequent stools, the patient in most cases getting out of bed to use a slop jar. (We in the country, that is, outside of New Orleans, encounter this overpurgation frequently and are severely criticized if strong purgatives are not given at the onset of any malady.)

THE STAGE OF CONVALESCENCE

From the fifteenth day on, the patient feels better and resents the enforced bed rest. He begs to be allowed to sit up and move about the room. He is advised to remain in bed another month and then gradually increasing his exercise. I do not think it advisable to let them drive their cars for six or eight months. A scarred and crippled heart is entitled to consideration and the cooperation of the patient should be obtained by a frank statement of the reasons for an altered mode of life. He must face his limitations and live with them. The onset of the earliest signs of cardiac inadequacy, such as increased tendency to shortness of breath or cardiac pain on effort, must be accepted as an indication that the myocardium is being overtaxed. The return to normal life must be gradual and carefully supervised.

PROGNOSIS

Connor reports in 109 cases that 93 per cent

were in good health at the end of 2 months; 21 per cent were well at the end of 5 years; 4 per cent were well at the end of 10 years; and 1 per cent well in 17 years.

In White's series of cases 21 per cent remained well in 5 years. It has been stated that the average duration of life in coronary occlusion is 2.4 years, 50 per cent dying in first attack, leaving 4.8 years as average for those surviving the first attack. The mortality in the second attack is 60 per cent or more.

In my 32 cases 27 per cent died within 72 hours; 54 per cent were dead at the end of two years.

CAUSE OF DEATH

1. Shock.
2. Ventricular fibrillation.
3. Cardiac rupture.
4. Cardiac aneurysm with rupture.
5. Second or subsequent occlusion.
6. Myocardial failure.

CONCLUSION

Acute coronary occlusion is more prevalent now, or it is more readily recognized than in the past. Frequent blood pressure readings with administration of fifty per cent glucose intravenously in cases of failing pressure, or small pulse pressure, have reduced the immediate mortality. Severe purgation is to be avoided. There is less danger of moving a patient in the first twenty-four hours than in the next eight days.

DISCUSSION

Dr. M. W. Miller (New Orleans): There is very little I can add to the subject matter within the scope of Dr. Hunter's paper, with the exception that it might be said in regard to diagnosis, that since the advent of the electrocardiograph more cases of coronary occlusion are being recorded and discovered than were diagnosed prior to the advent of this instrument. Oftentimes, in the minor cases, at least the cases in which the occlusion is not so large and the vessel occluded supplies a smaller amount of muscular tissue, repeated electrocardiographic studies must be made to establish completely the diagnosis. At times, the fourth lead is of value in this determination.

With regard to the treatment of the disease, there is little that I can add. The fundamental principle of the treatment of coronary occlusion is rest. I believe Dr. Hunter is right in his contention that during the first 24 to 48 hours following the accident, the cardiac musculature is stronger than it is for the next few days or even weeks, and if patients must be moved, they should be moved at this particular period, assuming that shock has been successfully combatted.

The management of these individuals in what Dr. Hunter styles the third stage of treatment is oftentimes problematic. He states, and correctly so, that the incidence of the disease is greater in persons along the higher walks of life, the professional man, men who are subject to considerable mental stress and strain, and in spite of their physician's insistence along the rest line it is difficult to have them consider the seriousness of the heart condition. These individuals fail to obtain adequate rest which we insist they have. In these particular circumstances, it is wise to remember that you are treating a patient with a disease rather than a disease in a patient. Each one requires a certain amount of study and observation, and your success with a particular patient is largely due to the accuracy of your knowledge of the patient's mental make-up.

The sedimentation test perhaps offers a field for determining just how long these individuals should be kept in bed after the accident occurs. We say six to eight weeks. Some of the minor vessels being occluded perhaps not even six to eight weeks is required, while six to eight weeks in others is not sufficient.

As our knowledge of coronary occlusion grows we realize that even some of the larger vessels may be completely occluded and yet recovery occur, recovery to such an extent that the person so diseased is able to follow out his normal habits of life to a large extent, and at least earn a livelihood. The management of these individuals when we have permitted them to return to work must follow under very careful supervision.

Dr. John H. Musser (New Orleans): I quite agree with Dr. Hunter in his concept that speaking from the point of view of the heart, probably the best time we can move the patient, if you have to move him, is almost immediately but the problem is that of a patient who often is in a state of rather grave and severe shock. I think probably that not the first 24 hours but the 24 to 48 hours later would be the best time to move the patient.

Dr. Hunter stressed the possible occurrence of ventricular fibrillation and that when this occurs death is going to take place. In order to obviate the danger of ventricular fibrillation quinidine has been suggested to be started immediately and at once. A point that Dr. Hunter did not dwell on is the prevention of coronary occlusion. Undoubtedly there is an inherited tendency of that individual who is going to have coronary occlusion to have a rather peculiar coronary system. Because of the fact this disease is always known as the "doctor's disease," and because of the fact of the family history in individuals who have begun to

have some slight precordial distress or discomfort, or even in those individuals who have not had premonitory signs, but are around 55 years of age, I think it is advisable to start them on some of these preparations which increase the size of the coronary bed. Keep those people on one or another of the xanthines, I prefer theocalcium, and keep them on the preparation for not a week nor two weeks, but a good many years. I have two or three of my dear friends who have a bad reputation in so far as family history goes, following that procedure. It is difficult to convince the lay individual to start taking medicine for the rest of his life. Certainly, the physician who knows what will happen should be convinced that taking theocalcium may obviate future occlusion.

Dr. Willard R. Wirth (New Orleans): This is an interesting presentation of the subject of coronary occlusion which is very timely, because as Dr. Hunter said, the condition is either apparently or really increasing, both in the number of cases seen and also, apparently at least, in individuals younger than the usual stated age period. Dr. Hunter stated some of his cases occurred between the ages of 40 and 50 years, and I have had the unfortunate experience of seeing typical cases in individuals under 40 years of age.

The diagnosis of the typical case, as Dr. Hunter said, is without very much difficulty, and in those cases the electrocardiogram is not an absolute necessity, simply an additional means of absolutely confirming the diagnosis. However, in those other atypical cases, of which we see many, then the electrocardiogram becomes a very important aid in the diagnosis. It must always be considered simply an aid and it never will and never was intended to supplant any of the other means of observation. Diagnosis of any coronary occlusion should be based first upon the history, then physical examination coupled with the electrocardiogram, and the other associated signs and symptoms such as fall of blood presure, or leukocytosis. In addition to the diagnosis of these atypical cases, the electrocardiogram in any case becomes of importance not only in the diagnosis but in the prognosis and the handling of the case.

As to prognosis, it has been shown there are two large types of coronary occlusion as to the position of the infarcts and they are the so-called anterior type which involves the anterior descending branch of the left coronary and the posterior, which involves the right coronary or circumflex branch of the left. It has been suggested that the prognosis in the posterior type is much less grave than the prognosis in the cases of the anterior type. When we have an anterior type of occlusion, typical electrocardiographically, we must regard the problem as much more serious clinically, probably twice as serious, as the posterior type.

In the management of the case the electrocardiogram may be of additional assistance in the attempt to evaluate and determine the time at which the patient may be allowed to get up, which is difficult to do. It is true that the typical anterior type should be kept in bed for at least two months, and in many cases probably longer. Certainly, it is true we should not allow the patient to get up as long as the electrocardiogram shows progressive changes, but should wait at least until the electrocardiogram is stationary, realizing always that these changes usually precede by several weeks the healing of the myocardium.

So far as the therapy of the condition is concerned, Dr. Musser's suggestion of the use of quinidine is important in the prophylaxis of ventricular fibrillation. Whether it should be given in every case of coronary occlusion is debatable. Certainly in those cases which show multiple or frequent ventricular premature contractions the use of quinidine is indicated but perhaps not in those that have regular rhythm.

Dr. M. W. Hunter (In conclusion): In reference to moving the patient in the first 48 to 72 hours, I have no idea of moving a patient in a profound state of shock, but administer morphine, narcotize well and then move. We are not speaking of cases close in town like New Orleans. We have to go five or six miles. We have to see that these patients do get adequate attention and I believe that after the immediate relief of shock, with the patient fully narcotized, it does make the ideal time to hospitalize him if we have to do so.

FACTORS INFLUENCING MORBIDITY AND MORTALITY IN BENIGN TERTIAN AND ESTIVO-AUTUMNAL MALARIA*

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Studies by malariologists have resulted in the universal acceptance of the existence of at least three distinct human species of malaria parasites. One of these, Plasmodium malariae, the causative agent of quartan malaria, is quite rare, and to us is neither a public health problem of moment, nor a suitable topic for investigation. We will therefore concern ourselves with the two types of malaria which are ever

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*Read before the Louisiana State Medical Society meeting, Lake Charles, La., April 28, 1936.

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present in our southern United States.

The clinical points of differentiation between tertian and estivo-autumnal malaria have become obscured in the minds of many physicians. The dictum advocated by Craig[1] many years ago has not received the attention it should—"all estivo-autumnal fevers should be classed as severe forms. Pernicious malarial fevers are caused by estivo-autumnal parasites, and every case showing the presence in the blood of such parasites should be considered as serious in nature". Perhaps it would be better if the term "malignant tertian" were accorded wider clinical usage in referring to estivo-autumnal infections. More frequent diagnosis of the type of infection by hematologic studies in suspected cases should help to curtail the morbidity and mortality of this disease.

Plasmodium vivax infections are characterized symptomatically by the regularity of the paroxysms and by no alarming clinical manifestations. The characteristic rigors, however, are accompanied by considerable temperature elevation. Not infrequently patients recognize the nature of their infection and have already taken preparations containing quinine before seeking medical advice. This infection may act as a contributory cause of death, but the mortality in uncomplicated cases is practically nil.

Estivo-autumnal, or malignant tertian malaria, is characterized by its diversified and pernicious manifestations. The patient is usually quite ill. Gastrointestinal symptoms often tend to produce puzzling pictures for differential diagnosis, while cerebral symptoms demand emergency therapeutic measures. The mortality of malaria is synonymous with that of estivo-autumnal infections as exemplified by the report of Kelley and Sydenstricker[2]. There were 51 deaths in their series of 814 malaria patients; 47 of those resulted from pernicious forms of estivo-autumnal malaria.

Plasmodium falciparum and P. vivax infections are therefore so dissimilar, that they behave like two separate diseases. Several factors relating to the pathogenesis of malaria aid in explaining these differences.

First, let us consider the number of parasites in the blood stream as a measure of the severity of the infection. Stained smears reveal unquestioned differences between benign tertian infections where parasites are scanty by comparison with untreated estivo-autumnal malaria. There are comparatively few observations, however, wherein actual parasite counts have been recorded. Ross and Thompson[3] state that 200-500 P. vivax and 600-1500 P. falciparum per cubic millimeter are the minimal numbers of parasites necessary to produce fever. Other reports concern themselves with the significance of parasite counts in estivo-autumnal malarial infections. Borels and Levan-an[4] find that when the parasite count approaches 1000 in twenty oil fields in a thick film the prognosis is grave. Kelley and Sydenstricker mention three factors which decide the outcome of pernicious malaria with cerebral manifestations; the degree of coma, the duration of symptoms prior to treatment, and the numbers of parasites in the blood. Thirty-three of 45 of their patients with less than 10 parasites per oil field recovered, while 12 who showed 20-75 plasmodia per field died. James[5] has found that estivo-autumnal cases showing 15 per cent infection of erythrocytes were invariably fatal, while those with 5-10 per cent infected corpuscles were serious. Ross[6], however, inclines to the belief that the degree of morbidity in these cases cannot be adequately determined by the number of parasites in the peripheral circulation.

In our own series[7], in which repeated observations were made on 20 malaria cases, it was found that the parasite count in the estivo-autumnal variety was double that of the tertian malaria cases. The figures do not give a true picture because we excluded critically ill estivo-autumnal cases as well as very mild benign tertian infections.

Scarcity of available material makes it impossible at this time to visualize the extent of visceral infection in tertian malaria. The older tertian parasites certainly show little tendency to remain in the internal capillaries, because they frequently appear on blood films. We also find that the parasite count tends to fluctuate only moderately during the 48 hour cycle of development. Although tertian parasites have been found in bone marrow smears and splenic punctures, we feel that the extent of

the infection in this type of malaria is portrayed by the number of infected erythrocytes in the circulating blood. On the other hand, numerous pathologic studies of fatal estivo-autumnal cases have demonstrated conclusively that P. falciparum tends to remain in the internal organs. Mature parasites of this type are rarely found in the peripheral circulation and the parasite counts may undergo wide fluctuation.

In addition to the higher parasite count in the peripheral circulation, estivo-autumnal malaria is always associated with abundant parasite growth in the internal organs. The total number of parasites in the body must therefore be greater. We feel that the severity of the symptoms and the degree of toxicity bear a direct relationship to this factor. Stitt[8] proposes that this must be brought about either by the infection and destruction of large numbers of erythrocytes or by the liberation of a large amount of toxic material by disintegrating merocytes. Certain symptoms of the pernicious forms of estivo-autumnal malaria are in addition due to visceral circulatory disturbances induced by the growth of mature parasites which singly or by agglutination produce capillary block. Others believe that blockage occurs because the reticulo-endothelial cells become distended with phagocytized pigment. The milder symptomatology of benign tertian infections may be attributed to the smaller numbers of invading plasmodia.

The reason for this prolific multiplication of P. falciparum in its human host has not been definitely explained. That the estivo-autumnal parasite is capable of dividing by amitosis or fission in the ring stage was proposed many years ago by Grassi and Felletti[9]. Multiple infection of a single erythrocyte, as well as rings with several chromatin dots, are frequently encountered during the examination of estivo-autumnal smears. Hingst[10] recently stimulated further interest in this question by describing morphologic appearances of parasites, which he submits as proof of this theory. Each trophozoite in estivo-autumnal malaria therefore may develop and reproduce by fission in the ring stage, thus explaining the large number of segmenters seen at times in both cultures and the viscera of the human host. The presence of a large number of segments in the rosette is one means by which an increase in number of parasites with each successive generation is obtained .

Eaton[11] first directed attention to the susceptibility of immature erythrocytes to infection in benign tertian malaria. We felt that a comparative study of the two most common types of malaria might be informative. A series of 20 benign tertian and estivo-autumnal patients was studied[7]. Reticulocyte and erythrocyte counts at various stages during the cycle enabled us to calculate and compare by the indirect method the number of reticulocytes, parasites and infected reticulocytes per cubic millimeter of blood.

Tertian malaria preparations revealed no evidence of a reticular network in parasitized cells which were older than 12 hours. The estivo-autumnal cases, because of irregular growth of parasites, showed parasitized reticulocytes at any stage of the cycle. In benign tertian malaria, reticulocytes containing parasites constituted a considerable proportion of the total infected red blood cells. Immature red cells were infected far out of proportion to their frequency in the circulation. In estivo-autumnal infections, reticulocytes were seldom infected, slightly less in fact than one would expect from the ratio which existed between reticulocytes and mature erythrocytes. From these studies, it seems plausible to suppose that P. vivax selects reticulocytes for its growth by preference. It is possible that only reticulocytes are infected by these merozoites. P. falciparum, the parasite of estivo-autumnal malaria, may enter and develop in any type of available erythrocyte. The number of parasites in the peripheral circulation in tertian infections is therefore limited by the number of reticulocytes available. This factor assumes more importance when we consider that the number of immature red cells in benign tertian infections does not increase in spite of the fact that destruction of these cells by parasites would seem to call for their replacement. Estivo-autumnal infections are associated with higher parasite counts because mature and immature erythrocytes are probably infected with equal facility.

The degree of phagocytosis of liberated merozoites is still another unsolved problem. The importance of this means of body defense against invasion by malarial parasites was first stressed by Metchnikoff[12]. He believed this to be an important factor responsible for spontaneous recovery in malaria. It is not possible at this time to define the role which this phenomenon may play in limiting the number of parasites in the body, especially in benign tertian infections.

These behavior differences in the final analysis must represent innate variations in virulence peculiar to each species of parasite. Knowles and White [13] propose a theory which in many respects is compatible with our knowledge of this disease. They believe that from an evolutionary standpoint, P. vivax appeared first as a parasite affecting man and has adapted itself well to environmental conditions. P. falciparum appeared later and has not yet become well adapted to parasitic life in its new host. This is evidenced by the fact that its range is limited, its symptoms are severe, and spontaneous cure is frequently encountered.

SUMMARY AND CONCLUSIONS

Benign tertian infections are characterized by a mild clinical course, while estivo-autumnal malaria is serious, irrespective of the presence of pernicious manifestations, which are responsible for the fatalities caused by this disease.

Certain symptoms of pernicious malaria are induced by capillary block because P. falciparum tends to grow in the viscera. It is our belief, however, that the mildness or severity of the clinical picture in tertian and estivo-autumnal infections is proportional to the number of parasites developing in the human host.

This increased virulence and prolific growth of P. falciparum results from several factors:

1. Trophozoites probably divide by fission early in their cycle of development.

2. Large numbers of merozoites are produced by the fully grown parasites.

3. The invading plasmodia of this species are probably capable of developing in either mature or reticulated erythrocytes.

The number of parasites in the body in benign tertian infections is limited, because P. vivax invades and matures in reticulocytes in preference to mature red cells. Opportunities for the infection of erythrocytes are limited by the small number of reticulocytes available. Phagocytosis of merozoites is possibly an important means of reducing the parasite count in benign tertian malaria.

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DISCUSSION

Dr. John A. Lanford (New Orleans): There is very little I can add to the summary of Dr. Shushan and Dr. Blitz' paper, but it would be well to emphasize certain features that they have brought out. The question of malaria is still an important one with use, but for some reason there has been very little discussion of it at medical meetings in recent years. However with the increase of malaria cases in the State it is right to bring this topic under discussion with certain other investigative work that has been carried on and reported in part by Dr. Shushan's work here.

Dr. Shushan has shown by very laborious investigative procedure, which he has only touched on in the paper, that the number of these organisms and the behaviour of the two types are quite distinct and from that investigation he has

drawn certain conclusions which I am going to talk about at the present moment.

He has shown that these two organisms behave clinically and pathologically differently and we might liken the behaviours of the sub-types of the pneumococcus which behave differently clinically and pathologically dependent on the particular type of pneumococcus that produces the lobar pneumonia. This biological difference is of importance in an effort properly to treat the case, keeping in mind constantly that the estivo-autumnal type is really a fatal disease unless properly handled, whereas on the other hand the tertian type may proceed for a period of years and the patients not necessarily die. As he has shown, the mortality rate of the estivo-autumnal type is quite high as compared to the tertian type. He has shown too that the reticulocytes of the blood seem to be free of pabulum on which tertian lives, and since these cells are relatively few in the blood stream and the tertian organisms largely live in them you cannot have the stupendous, overwhelming invasion with the tertian type. It is possible to keep in mind that certain cases may be overwhelmingly invaded by the tertian. On the other hand, the estivo-autumnal can invade the mature type of red cell. Therefore, they have much more pabulum on which they can grow and multiply.

I think these facts are important to keep in mind, and wish to say it is my opinion that Drs. Shushan and Blitz have done a very nice piece of work.

Dr. Morris Shushan (In conclusion): Our studies bring out another point which deserves emphasis at this time. We have found that practically all estivo-autumnal cases in our series were characterized by a tremendous variation in the number of parasites in the circulation. In several instances, no parasites could be demonstrated at certain times, while smears made eight to ten hours later revealed numerous plasmodia. Estivo-autumnal malaria should not be ruled out by a single blood examination.

The tertian malaria counts were only moderately high and showed surprisingly little variation.

In conclusion, we feel that the profession can aid in reducing morbidity and mortality in malaria by recognizing promptly and reporting the type of infection present. This will certainly help to combat the rising incidence of this disease in this State.

ROENTGEN RAY TREATMENT OF HAY FEVER

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The following report of sixteen cases of hay fever treated by roentgen ray indicates that good results may be obtained by the use of this method alone. It is believed that the roentgen rays have a specific desensitizing action on the mucous membranes of the nose, nasopharynx and eyes, and that the results obtained are not accidental. The duration of the effects obtained cannot be stated at this time, due to the fact that the "hay fever season" for this particular group of patients is over and will not return until next year. It is to be noted that among the cases reported here, two of the patients were suffering from active asthma during the course of treatment, and that neither of these patients were influenced by the administration of the roentgen rays. While this fact is mentioned, no attempt will be made to explain it at this time.

All of these cases were treated with roentgen rays with the following factors: 100 kv., 3 ma., 2 mm. Al. filtration, and a field of 10 x 10 cm. Irradiation was given over the region of the nose, the rays being directed slightly caudally in an effort to avoid direct irradiation of the pituitary. The eyes of all patients were protected by lead foil as soon as the first symptoms of improvements here were noted, and no patient received more than three irradiations without protection over the orbits. No other form of treatment was used by any patient during the course of irradiation. All patients are members of the white race, and each had a positive diagnosis of hay fever from a competent general practitioner or eye, ear, nose and throat specialist. Each case was studied with reference to occupation, coloring, and economic status, but as these apparently had no bearing on the results obtained, no further mention of them is made.

CASE REPORTS

Case 1. C. L. B., aged 32 years, has had hay fever for four years, which lasts from early June until the first frost. It was not associated with asthma. The patient had had no food or pollen tests. His treatments in the past had been limited to local applications in the nose, none of which have given him more than a few hours relief.

The detailed roentgen ray treatment and results were as follows: August 28, 1935, he received one-half of a skin erythema unit of irradiation, which was followed by a moderately severe reaction that lasted about eighteen hours. September 3, 1935, one-fourth of an erythema unit was administered. This was followed by a slight improvement in his

symptoms. September 9, 1935, he was given one-fourth of an erythema unit, which was followed by considerable improvement. His eyes no longer itched and they had lost their redness. September 13, 1935, one-fourth of an erythema unit was given. This was followed by complete cessation of all symptoms. On September 24, 1935, patient had had no treatment for eleven days and was free of all symptoms. October 15, 1935, he had had no symptoms to date, despite the fact that he had been hunting several times during the past month, a thing he had been unable to do during the past four years. November 16, 1935, he was still free of symptoms, even though he has been hunting several additional times. December 1, 1935, patient remained symptom free until the first frost of three days ago.

Case 2. R. D. K., aged 37 years, has had hay fever for the past two years. It begins in July, lasts until the first frost, and is not associated with asthma. He had had no pollen tests, but food tests made a year ago indicated a sensitivity to nuts, pork, beef, sea foods, eggs, beans, bananas, tomatoes, and white bread, none of which have been eaten during the past twelve months. Treatments in the past had consisted of local applications in the nose only, and none have afforded more than a few hours relief.

Treatment: This patient was given one-half of an erythema unit on August 29, and another fourth of a unit four days later. These were followed by a slight improvement. At this time he was away for fifteen days on his vacation, during which time nothing was done in the way of treatment. On his return, four more irradiations were given, each consisting of one-fourth of a unit, and each given after four-day intervals. These were followed by complete cessation of all symptoms which lasted up to the first frost.

Case 3. Miss M. Y., aged 30 years, had suffered from severe hay fever for the past five years. It begins in the early Spring and lasts until the first frost, and is associated with a severe asthma that is present at this time. Her asthma begins the latter part of August and lasts until the first frost. She had had no pollen tests, but food tests indicated sensitivity to eggs, pork and nuts. Her treatments in the past had included inoculations of extracts, local applications in the nose, sinus lavage, and control of diet. With the exception of a slight improvement in symptoms when she is on a proper diet, no form of treatment has seemed to help.

Treatment: This patient was given the initial one-half erythema unit on August 29. Subsequent doses of one-fourth units were given at four-day intervals to make a total dosage of one and one-half units. No improvement in her symptoms was noted up to this time and treatment was discontinued. No relief was obtained until the occurrence of the first frost, at which time both her hay fever and her asthma stopped.

Case 4. Mrs. G. E. S., aged 37 years, has had hay fever for eight years, which lasted from the middle of August until the first frost. It is not associated with asthma. She had had no food or pollen tests. Her past treatments had consisted of local applications in the nose, and had afforded no relief.

Treatment: One-half erythema unit, followed by a severe reaction, five days later one-fourth unit, and four days later a similar dose was given. Patient was free of symptoms following first dose and remained so until the first frost.

Case 5. T. C. S., Sr., aged 56 years, has had hay fever for twelve years which lasts from July until the first frost. He did not have asthma. No food or pollen tests had been made. His only treatments had been local applications in the nose and they afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms.

Case 6. Mrs. S. H,, aged 39 years, has suffered from hay fever for three years, which lasts from early September to the first frost. She has suffered occasional asthmatic attacks for the past eight years, but was not troubled with them at this time. No food or pollen tests had been made. Her treatments had consisted of local applications in the nose, but no relief was obtained.

Treatment: One one-half erythema unit and four one-fourth units were given with relief of symptoms.

Case 7. T. C. S., Jr., aged 30 years, has had hay fever for five years. It lasted from the first of September to the first frost, and is not associated with asthma. He had had no food or pollen tests. His treatments had consisted of local applications only and they had afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units were administered with relief of symptoms.

Case 8. Mrs. A. J. D., aged 30 years, has had hay fever for five years. It begins about September 21 and lasted until the first frost. She did not have asthma, and no food or pollen tests had been made. Her past treatments consisted of local applications in the nose, but these had afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units wre given with relief of symptoms.

Case 9. Mrs. C. F. P., aged 29 years, has had hay fever for the past four years. It begins about the third week of September and lasts until the first frost. She had never had asthma. No food

or pollen tests had ever been made, but this patient was the daughter of a physician and has received mixed fall pollens and cold-influenza vaccines each year with some relief up to this present season. She was also three months pregnant at the beginning of roentgen ray treatments, a fact which may have been responsible for her apparent failure to respond to inoculations, and which, as time passed to about the three and a half month stage, may have favorably influenced roentgen ray treatment by the general improvement in her physical condition.

Treatment: One one-half and six one-fourth erythema units were given with complete relief of symptoms.

Case 10. J. G. L., aged 25 years, has suffered from hay fever for the past five years. It begins about the middle of September and lasts until the first frost. It was not associated with asthma. Food and pollen tests had been made and they have indicated sensitivity to ragweed. He had received treatment by means of the administration of pollen extracts, and these have seemed to help a little. However, no form of treatment has been taken this season prior to receiving the roentgen rays.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms.

Case 11. Miss P. H., aged 36 years, has had hay fever for ten years. It always begins about the middle of September and lasts until the first frost, and it was not associated with asthma. Pollen tests had been made in the past and indicate that she was sensitive to marsh alder and cockle-burrs. She had taken these pollen extracts each year with good results until this year.

Treatment: One one-half erythema unit and one one-fourth unit were given, after which the patient did not return for further treatment. All attempts to contact her were unsuccessful, but a friend of hers informed me that the second irradiation was followed by a moderate reaction, and the patient was afraid to return for another.

Case 12. Miss F. J. C., aged 30 years, has had hay fever for the past twelve years. It always begins about the fifteenth of September and lasts until the first frost. She did not suffer from asthma. She had had no food or pollen tests, though she had found out from personal observation that she is sensitive to wheat flour which she avoids. She had changed climate each year and obtained complete relief but has had no other form of treatment.

Treatment: One one-half erythema unit, and six one-fourth units were given with complete relief of symptoms.

Case 13. S. J. S., aged 34 years, had suffered from hay fever for eight years. It was associated with a severe asthma, from which he was suffering at this time. Both his hay fever and his asthma begin about the middle of September and last until the first frost. No food or pollen tests had been made, but he had taken mixed fall pollens each year for the past several years with doubtful results. He had also received treatment in the form of local applications to the inside of the nose, but none of these had given more than a few hours' relief.

Treatment: One one-half erythema unit and six one-fourth units were given with no change in the patient's symptoms. He received no relief until after the first frost when nature automatically relieved him.

Case 14. F. G. S., aged 38 years, has had hay fever for ten years. It begins about the middle of September and lasts until the first frost. He also suffered from an occasional asthmatic attack at any time during the year, but had had none since his present hay fever started. No food or pollen tests had been made, but his physician had given him the course of mixed pollens several times in the past. This has always resulted in making his symptoms distinctly worse. He says that local applications have been of no help.

Treatment: One one-half and six one-fourth erythema units were given with complete relief of symptoms.

Case 15. Mrs. M. S. P., aged 24 years, has had hay fever for the past four years. She suffered from a light type of hay fever the year around, but it became very severe from the early part of September until after the first frost. She had never had asthma. No food or pollen tests had been made, and while she had been to a physician for diagnosis, she had never had any form of treatment.

Treatment: One one-half erythema unit and six one-fourth units were given with complete relief of her severe type of hay fever. The light type still remains apparently uninfluenced but the patient states she is "at least three-fourths well and more than comfortable".

Case 16. S. L. P., aged 30 years, had suffered from hay fever for three years. It begins the first part of July and lasts until the first frost, and was not associated with asthma. He had had no food or pollen tests. His only form of treatmen had consisted of local applications which had afforded only a few hours relief at the time.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms .

SUMMARY

1. Sixteen cases of hay fever were treated

by means of roentgen rays only.

2. Two of these cases were suffering from asthma during the course of treatment and failed to respond to the roentgen rays (Cases 3 and 13).

3. One case failed to return after the second treatment and no results were obtained (Case 11).

4. One case failed to show any response from a light year-round hay fever, but was apparently completely relieved from her "autumnal" type (Case 15).

5. The remaining twelve cases obtained complete relief from their symptoms following completion of their treatments and until the first frost when nature automatically ended their hay fever season.

AN INQUIRY AS TO THE NATURE OF CHRONIC APPENDICITIS

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Chronic appendicitis, once generally accepted as a disease entity, has been in recent years much buffed about and the purpose of these remarks is to attempt to determine its place in the catalog of diseases.

A disease to warrant acceptance must fill certain requisites. It must present a definite symptomatology within the range of clinical determination, it must present a constant and definite pathology, and the removal of the lesion must cure the patient. These are the phases which chronic appendicitis must meet if it is to retain its identity as a disease.

Since we speak of it as a chronic condition, it implies that there is also an acute disease. It will be profitable therefore first to examine acute appendicitis according to the requirements above outlined.

Clinically, acute appendicitis begins with epigastric pain, often with vomiting, to be followed in a day or so by pain and rigidity where the appendix is located. Why the epigastric pain? The pain obviously is a reflex one. We must assume that this referred pain is due to the stretching of the nerve plexuses in the wall of the appendix. From experience in operating under local anesthesia we know that crushing of the organ does not produce pain but a stretching of the wall does. In doing appendicostomy, an operation formerly done, one can, by passing a forceps within the lumen of the appendix and distending it, produce epigastric pain and vomiting. The same happens in removing gallstones under local anesthesia. Cutting the gallbladder causes no pain but when we attempt to pass a scoop about a stone, distending thereby the gallbladder, vomiting and pain are produced.

The local pain is caused when the appendix becomes sufficiently inflamed to cause irritation of the parietal nerves. If the appendix is so located, as in the culdesac, that this parietal irritation is not produced there is neither local pain, tenderness nor rigidity. If the appendix ruptures, pain and rigidity become diffuse but we no longer have to do with appendicitis as such but have to deal with a spreading peritonitis. That is the clinical phase of acute appendicitis, one of the most constant and clearly defined in clinical medicine. Now its pathology: We have to do in a typical way with the four cardinal signs of inflammation, namely swelling, redness, pain and heat. The first change is edema. This produces an enlargement of the organ which causes a stretching of Auerbach's and Meisner's plexuses, hence the referred pain and vomiting. Following this the appendix becomes hyperemic thereby producing redness. With the dilatation of the vessels an exudate is formed within the tissues and when this reaches the surface of the peritoneum covering the appendix we have a periappendicitis. When such an organ is exposed at operation the organ can be felt to be hotter than normal. In this way all the changes of acute inflammation can be recognized. This exudate produces a hyperemia of the parietal peritoneum and with this comes the local pain and rigidity.

If the process of inflammation regresses the acute attack subsides within one or several weeks. If it goes on to destruction of the wall of the appendix bacteria escapes and if walled in we have a localized abscess, or a spreading peritonitis, but this is no longer an appendicitis but a localized or a spreading peritonitis resulting from an appendicitis.

If we remove the appendix while the disease

is confined to the appendix cure is prompt, complete and permanent. Therefore acute appendicitis qualifies as a distinct disease clinically, pathologically and prognostically.

Before passing to the consideration of chronic appendicitis in the same light it is necessary to emphasize the fact that an acute appendicitis having run its course subsides though it may recur. We speak then of a recurring appendicitis, not a chronic one. Likewise, as the acute process is subsiding time is required for the absorption of the exudate, both cellular and serous, and we have a healing appendicitis. This may result in the formation of a scar in the appendix. This is an end process of an acute state, not a chronic one. Therefore, neither an acute recurring appendicitis nor a healing one is to be confused with chronic appendicitis.

Passing now to the problem of chronic appendicitis we have as a symptom a more or less constant pain in the right flank. It is constant in the sense that now and then a sharp pain is felt somewhere in the right lower quadrant, here one day, gone the next, over a period of months and years. The pain is felt in the sacroiliac region, over the hip or down the medial surface of the thigh. The pain may be increased on very light or very deep pressure. There may or may not be muscular resistance. It there is increased resistance it is true of the whole abdomen and is not confined to the region of the appendix. Therefore it is not due to irritation of the parietal nerves. Furthermore quite commonly like pain is complained of in the left side as well as the right and not rarely it is located on the left side only. I will not mention the great variety of signs and sympoms which have been ascribed to chronic appendicitis such as dysmenorrhea and the like.

Now as to the pathology: The signs of inflammation noted in the case of acute appendicitis are all absent. Lymphoid infiltration has been most constantly mentioned. The appendix being a lymphoid organ such cells are found in all appendices whether there be symptoms or not. Fibrosis is the other point mentioned. The amount of fibrous tissue in the appendix is variable. It increases with advancing years and is nearly always marked in old age. That is to say fibrosis is most pronounced in that period of life in which symptoms ascribed to a chronic appendicitis are no longer marked. From the pathologic viewpoint these chronic appendices do not qualify as a disease.

The next point to be considered is the result following the removal of the appendix. The result of a follow-up of the staunchest advocate of chronic appendicitis showed 73 per cent not relieved. The percentage of those not relieved is higher in the hands of those who approach the problem with an open mind. Therefore prognostically operation for chronic appendicitis fails utterly. True enough the patients are usually relieved for about three months and then they appear as before.

Chronic appendicitis therefore lacks a definite symptomatology, lacks wholly the elements of inflammation, there is an entire absence of any constant pathologic change, and finally the results of the removal of the appendix fails to relieve the patient's complaints. We are compelled, therefore, to conclude that whatever may be the cause of the symptoms complained of they are not due to a disease of the appendix. The removal of the organ with the hope of producing a cure will fail, as experience has so abundantly proved.

The doctor must be something more than an iconoclast. If the pain complained of is not due to a chronic appendicitis, what is it due to? The patient wants relief and we must seek elsewhere. Starting anew in our investigations we discover that the vast majority of cases are found in young girls, chiefly in the years following puberty. There is often an associated dysmenorrhea. Quite often the complaints which have been ascribed to chronic inflammation of the appendix are much more severe at the beginning of menstruation, with pain referred to the sacral region, over the hip and down the medial surface of the thigh, typical referred pains of ovarian origin. We have therefore to look to the ovary. We note also that there is constantly a slight thyroid enlargement; this enlargement is always uniform, firm and elastic, obviously a functional disturbance of the thyroid gland. From the little material available we may say there is a colloid increase,

a flattened acinal epithelium without cellular hyperplasia, obviously a dysfunction of the thyroid gland. We have therefore a constant clinical picture as such, as there is a constant anatomic finding, not of pathology but a disturbed physiology. This is sufficient to cause us to look to the thyroid as a party to the disturbance, the disturbance therefore being an endocrine imbalance. In years gone by ovaries were very commonly removed in this condition and we are able to state there are no organic changes in the ovary. Since the thyroid gland presents the only obvious changes we look here for the likely source of the disturbance.

We therefore proceed to correct the thyroid imbalance. From the therapeutic point of view it can be stated that with potassium iodide and bromide therapy these goiters lessen and with it the groin pains. When the endocrine balance is restored the pain disappears. Therefore we may conclude that the groin pains were not located in the appendix but in the ovary, a pain physiologic and not anatomic in nature and dependent on an endocrine imbalance.

Furthermore, we are able to observe nature's way of securing an endocrine balance. Pregnancy ends these groin pains. No one has ever seen a so-called chronic appendicitis pushing a perambulator. Furthermore, those girls who acquire venereal disease are not troubled with chonic appendicitis. One may say therefore that the groin pains are the price of virtue.

We may conclude from both positive and negative evidence that the pains which have been ascribed to a chronic appendicitis are really ovarian in origin due to endocrine disturbance. —Q. E. D.

THE OPERATION OF THE OSCAR ALLEN TUMOR CLINIC

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NEW ORLEANS

The rising mortality rate of all malignant disease, the apparent increase in its prevalence and the lack of a specific curative measure make cancer control the gravest problem confronting medicine today. It has become well established that a concerted attack on cancer may best be effected through the operation of tumor clinics in general hospitals. In furthering the aims of the Committee on Malignancy of the American College of Surgeons, the Tumor Clinic at Charity Hospital was created in September, 1933. Tonight I propose to review the work of the institution during the first two years of its existence.

A tumor clinic at its best enables cancer victims to secure the benefits of the latest advances in therapeutics in a number of unrelated fields by integrating the knowledge of several experts. It also affords an opportunity for increasing our understanding of the nature and genesis of tumors.

Soon after organization we realized that one of the essentials was the possession of adequate records, if the clinic was to accomplish anything in clinical research. It is our belief that we must strive to cultivate clinical as well as experimental methods of inquiry into the nature and vulnerability of cancer. Clinical research should prove of invaluable service in unraveling some of the more subtle and enigmatic problems in malignancy. Keen, exhaustive study of patients throughout the course of their malady may well be expected to shed light on the predisposing factors, the incipient stages and the hereditary pattern of human neoplasm. The precise evaluation of suitable methods of treatment is dependent on the exactness of our clinical observations and the scientific usefulness of all information obtained in the Clinic is conditioned by the accuracy with which we transcribe it to our files for subsequent reference and analysis. As Maud Slye well says, "Within the potentiality of records penetratingly taken there may lie the solution of cancer." Hence the importance of adequate tumor records is immeasurable. For this reason we investigated the records of fifty-nine American, four Canadian and five European tumor clinics. Record forms from these institutions are on exhibit and will repay careful perusal. Their best features have been incorporated into our system.

The record includes an exhaustive history and complete physical examination with good description of the lesion. Etiologic factors, such as trauma, chronic irritation, previous pathology in the area involved and heredity,

*Read before the Orleans Parish Medical Society, November 25, 1935.

are especially investigated. Whenever the lesion is visible, a diagram is drawn to scale, recording as accurately as possible its dimensions and shape. This serves as a guide to the distribution of interstitial foci of radiation. The diagram and a photograph provide a graphic record which is incomparably superior in preserving a vivid image of the actual pathology present. The most complete set of diagrams for this purpose now in use at our clinic originated at the Paris Radium Institute and have been widely adopted by other clinics. By drawing them to scale on ordinate paper, as is done at the British hospitals, more precision is attained. For gynecological diagrams, the life-size drawings designed by Dickinson have become standard. By repeating the photographs and diagrams whenever the lesion changes, progress or regression are depicted, that is, response or tolerance to therapeutic measures.

In the graphic preservation of our cases it has been our good fortune to have the services of Mr. Stewart, artist for the L. S. U. Medical Center. Most of the paintings on exhibit are his work and it is needless to point out their faithful reproduction of the pathology present as well as their undoubted artistic merit.

An essential part of the record is the biopsy report. Biopsy in our experience has proved an entirely harmless procedure. Of six hundred and three patients seen during two years, four hundred and seventeen were subjected to biopsy without untoward results. Indeed, the advantages of a biopsy so far outweigh any consequent dangers that its performance has become mandatory in nearly every lesion whose nature may be malignant. The tendency now is for patients to apply when their condition lacks gross diagnostic features, making a microscopic picture the sole criterion. Despite much research this is the only reliable method of identifying malignancy in the curable stage. Hence biopsy becomes imperative. In using the electrosector, with minimum trauma and adequate preliminary or immediate post-operative radiation, the risks of biopsy are negligible. By definitely establishing the diagnosis, it confers authenticity to our record.

It may be thought that a record of this type will be voluminously unwieldly and over-detailed. We must remember that we are dealing with an obscure affliction, no particular of which can be too trivial, no case record of which can be condemned as prolix. For in the inscrutable front of our formidable enemy a minor sign may point the way to its ultimate defeat.

The Staff at the Oscar Allen Tumor Clinic is composed of a surgeon, two pathologists, a radiotherapist, an internist, a dermatologist, a gynecologist, an oral surgeon, and two clinical assistants. The entire staff meets in conference once a week. At these meetings the new patients admitted during the week are reviewed and freely discussed by representatives of nearly every specialty of medicine. A plan of treatment is dictated and recommendations are sent to the service from which the case was referred. The chief of each service is at liberty to follow or disregard these recommendations according to his own judgment. In addition to the new cases, old cases that are progressing unsatisfactorily are reviewed and new therapy advised. Good therapeutic results are brought to the attention of the staff. Visitors are present frequently, and it is to be hoped that as the Clinic efficiency improves more and more physicians will avail themselves of the opportunities for study of our malignant cases.

At these conferences the work of our pathologists, Doctors von Haam and Connell, has been invaluable. No longer does it suffice to obtain a report stating that a carcinoma or a sarcoma is present. The pathologist must give the histogenesis, the degree of malignancy and the radiosensitivity of each tumor. With this information and the clinical and other laboratory data, a rational guide for treatment is provided and prognosis made possible.

A five-year follow-up is contemplated in every proved malignancy. During this period regular visits are required from the patients. With the patients at the Clinic the task of obtaining their cooperation is a heavy responsibility for the social worker. Miss Louise Myers, who has been in charge, has performed this work most ably, and we are confident that our percentage of five-year follow-up will convey

real significance when our statistics are tabulated.

Needless to say the staff has cultivated a familiarity with all the refinements of diagnosis which tend to discover neoplasia early in their development. Aside from careful clinical and roentgenologic studies, transillumination has been tried, Schiller's iodine test has been found valuable, the Ascheim Zondek reaction in teratoid tumors is a distinct forward step and a blood phosphatase determination is of sufficient merit to place it in use for all bone tumors.

As to therapy, the surgical interventions have been performed by members of the several services whose cases were referred to the Clinic. The excellence of their work will be appreciated in the case records which are to be reported tonight. In the field of radiation, Dr. Miles, our radiotherapist, though handicapped by the enormous amount of work which had to be performed with a single deep therapy machine, and also by the improper distribution and poor filtration of our radium supply, has done remarkable work. It will be possible to appreciate this by the slides which are to follow.

It has been our observation that the doses of radiation administered to malignant growths heretofore were far too small to be effective, but the erroneous conclusion was prevalent that radiation was of no curvative value. As to ultimate curative results, nothing can yet be said from the material seen at the Clinic but it is established beyond a doubt that complete healing of primary growths, even when quite extensive, can be attained by radiation properly delivered. It is to be emphasized nevertheless that the indications for radiation of all types are becoming better defined, and that experience and considerable knowledge are required to undertake the administration of roentgen rays or the application of radium.

It has become our policy to recommend preliminary radiation even in radio-resistant growths, such as rectal cancers and bone sarcoma of the true osteoplastic type. Devitalization of the cancer cells, reduction in the size of the tumor, control of hemorrhage, and improvement of secondary infection are benefits derived from it. Subsequent surgical procedures are made easier, and the risk of causing metastases by operative manipulation is reduced.

We consider the method of protracted, fractional, intensive roentgen therapy of malignancies of the oral cavity a remarkable triumph of radiotherapy. The immediate results in nearly every one of our cases so treated have been most gratifying.

From September 8, 1933, to September 15, 1935, six hundred and three patients have been seen at the Tumor Clinic. Of these one hundred and fifty-three have died since their first visit and one hundred and eighty-two have been discharged because they had no neoplastic disease, or because their growths were benign and cured. The others are being followed up at the Clinic with regularity.

It is exceptional to see true malignant cases in the early stages; in the majority the growth is well advanced, offering a difficult if not a hopeless therapeutic problem. However, it can be said with satisfaction that many of the apparently hopeless cases have been kept controlled and are surviving far beyond our expectations.

In presenting the following patients* we should like to emphasize that they do not represent the work of the Clinic staff alone. In a sense they show the collective efforts of the entire surgical and medical staffs at Charity Hospital. We wish to express our thanks to all the services that have cooperated with the Clinic and to offer our apologies should we inadvertently fail to give proper credit for their work. We believe that with greater cooperation the results with our cancer cases would be even more encouraging. Our idea in bringing these cases before you is to call to your attention the possibilities of present day methods of attack on malignancy and to show a basis on which we can view this field of medicine with greater optimism.

We should like to stress the need for instructing the general practitioner of his role in prophylaxis and early diagnosis. Much can be accomplished in reducing the incidence of cancer by destroying the soil most favorable for

*Dr. Nix presented actual patients; statistical charts and color slides were shown on the screen.

its growth. We refer to those chronic lesions of the body which have been found to be common precursors of malignancy, such as leukoplakia buccalis and cervical lacerations. Avoidance of all forms of chronic irritation will help in the work of prevention. The public must equally be educated in the facts that will prompt them to seek treatment early. No factor must be neglected in our campaign against cancer.

Before concluding we wish to express our appreciation for the work of all the members of the Clinic staff and to our photographer, Mr. Diet.

CONCLUSIONS

In the efficient operation of a Tumor Clinic lies the protection of a community against the ravages of cancer; it is the agency by which all the most modern knowledge and the most effective methods of combating cancer become available to the victims of malignant disease; it institutes the collective approach to cancer control; it pools the knowledge of several specialists in the recognition and treatment of new growths; it is a medium for clinical and experimental research into the nature and genesis of cancer; it is a focus of professional and public education as to the manifestations of incipient neoplasms and as to the facts on prevention, and it represents warfare against cancer at its best.

CONTEMPORARY MEDICINE AND THE "SOUL"

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NEW ORLEANS

Medical science, long adhering to the strictly physical approach to disease, is today beginning to realize the inadequacy of this point of view and to give increasing attention to the influence of the mind upon bodily functions. Contemporary medicine is learning that despite the attempts of certain schools of psychology to eliminate the "soul", or the emotional factors in life, many kinds of diseases yield to treatment directed toward the psyche. Little by little physicians are realizing anew that soul and body are inseparable, that the consoling faith of religion, or a cheerful disposition may help the body, and that one's physical condition may affect his entire outlook on life. Medicine has become keenly aware of the importance of the inner world to the patient; that within the "soul" of man are factors making life either a Heaven or a Hell.

The alarming increase in the number of mental disorders, due to the complexities and confusions of present-day civilization, is responsible in large measure for this shift of emphasis. For decades, medicine has attempted to avoid all contact with strictly psychic problems upon the assumption that such are outside its province, but the study of the neuroses has brought out the unmistakable fact that their causes are psychic, and that their cure depends to a great extent upon psychic methods of treatment.

The psychic factor in disease is now recognized in its own right along with such factors as inheritance, disposition, and bacterial infection. It is well known that physicians are often unable to cure an ordinary disease in a person with a distorted emotional life, and that drugs lose their efficacy under great emotional stress. Furthermore, many cures take place in our hospitals that are unexplainable on the basis of our present knowledge of medicine. Patients have been known to recover who were expected to die and have astonished their physicians. Some of the most outstanding instances of cures presumably effected by the emotions are those reported at Lourdes, St. Anne de Beau Prés, and other noted shrines. Things happen at these places which can not be explained upon purely mechanical principles alone. Certain unknown psychic forces appear to be at work here bringing about some remarkable recoveries that apparently restore people to normal health.

That modern medicine is paying more and more attention to the influence of the mind upon the body may be seen by even a cursory glance at the medical literature of today. The newest emphasis in nearly every field of research, from biology to psychology, from constitutional medicine to neuro-anatomy is on the importance of careful study not only of the parts, but of the organism as a whole.

A striking illustration of this changing viewpoint of contemporary medicine is the present

movement to revamp the curricula in leading schools of medicine. The Committee on the Costs of Medical Care of the American Medical Association has stressed the necessity for training more general practitioners in whom medical service to the "whole man" may be centered. They feel that "the social background and interrelations of medicine should be as much a part of medical education as the physical, chemical, and bacteriological background."

Such revamping of the medical curricula, already adopted or suggested, is part of the changing attitude of the relation of the physician to society. The orientation of medical education now under way implies much more than a mere revision of the curriculum. It involves a redefining of the purpose of a medical course. In line with this thought, efforts are being made to overcome the isolation of the various medical courses and to correlate them into an integrated whole. Especial stress is being placed upon the study of the living body, to relate courses in anatomy and physiology that have been unfortunately divorced. Critics of present-day medical training contend that the student has really never been taught to study the human body as it functions in a living being. His knowledge has come from the cadaver, whose desiccated organs have lost their true relations in the living body, and give the student an incomplete picture of the living, breathing individual. He has learned the parts first, without reference to the whole, and is somehow expected later to synthesize these disconnected facts and relate their meaning.

Little by little, however, physicians are getting away from the "guinea-pig" school of medicine and are realizing that a doctor has to deal with sick individuals and not with the guinea-pigs of the physiologist. The new approach to disease has been conveniently summed up in this fashion: Here is a sick human being. Whether he has typhoid fever, pneumonia, or infantile paralysis does not matter, but most important, what is he doing about his bodily illness? What is his attitude? What is he making out of it? What is he going to do when he is cured or when he has to live the life of a cripple? In other words, what is the total reaction of the individual to the particular situation? Through this point of view, it is brought home to the student that the patient is a human being and that even after diagnosis, he is still dealing with a human personality, and not merely with the case of a particular disease.

The trend in modern medicine away from specialization—from treating diseased hearts and livers as if they were organs entirely removed from the personality of the patient—has been accompanied by a rapidly changing attitude toward psychiatry. Psychiatry is the only branch of medicine that enables the student to see the patient as a whole. It assists the student to apply his knowledge of physiology, anatomy, and other biological sciences to the understanding of the patient as an individual. The various ways in which the individual, with his own special endowment, his own inner difficulties of equilibrium and past experience, adapts himself to the conditions of his life by word and thought and deed; all these are of vital concern to the psychiatrist, and to the general practitioner as well.

The psychiatrist today is concerned with the whole question of personality adjustment, of the individual's reaction to his total environment. He does not limit himself to the purely mechanical aspect of human behavior, but studies both mental and physical factors involved. Looking at the total situation, he probes into the complexity of environmental and cultural factors, and studies the way in which the individual adapts himself to the specific situation in his own life. This point of view is stressed particularly in the constitutional theory of disease, which seeks to show a direct connection between particular types of constitution and particular forms of illness. Here there appears a close tie-in between anthropology and the teachings of psychiatric medicine.

This breaking down of the old dualism between mind and body is revealing the closer relationship between mental and biological processes, and the futility of attempting to separate mental diseases from physical diseases, or mental processes from physical processes. In line with this trend, there has been an increasing tendence in medicine to take account of psychological influence in the origin of certain dis-

eases whose origin is as yet uncertain. These facts have led to the gradual breaking down of the old distinction between functional and organic disorders. It has been found that certain diseases usually termed "organic" sometimes yield to psychological methods as certainly as the "functional" type. It is argued that the suggestive action which manifests itself in the case of tumors, or local malformations, can be very simply explained solely by the influence of the mind. Furthermore, ideas implanted in a suggestible mind may even lead to the building up of cellular tissues in an organ diseased through physical causes, seeming to prove the statement that "there is no tissue of the human body wholly removed from the influence of spirit".

Medical science thus recognizes that certain unhealthy, habitual states of mind are apt to be accompanied by various derangements of the function of the body. In keeping with this thought, medicine has found in psychotherapeutics an effective means for the resynthesizing of personality, the restoration of the normal individual. The aim of psychotherapy is to reassociate the split-up personality, to form such healthy complexes of ideas as will stimulate the desired complexes and contribute to the well-being of the individual, adapting him to his environment.

Merely securing the proper adaptation to a given environment, however, is not sufficient—it does not supply meaning to life nor the motives for living. One of the greatest mistakes of medical science has been the assumption that it could get on without interesting itself in spiritual matters. Yet it is now being recognized that the truly capable physician must be somewhat of a philosopher and a psychologist, ready to minister to the patient's mental ills as well as to aid in the healing of his body.

Oftimes the physician finds that what the patient needs is to change his entire outlook on life, to avoid gloomy thoughts and to engage in some worth while occupation. Through suggesting the right acts, the physician helps the individual to adapt himself to his surroundings. It is at this point that medicine comes in close contact with religion. In this wise, physicians and educators, religious and otherwise, make use of the same fundamental influences: utilization of emotions, desires, strong interests, and enthusiasm; definite and arduous training in some one direction; and the eradication of conflicting desires or hidden obstacles to the reconditioning of motor habits and memories in the subconscious.

It is a well known fact that the too self-conscious individual by concentration upon himself becomes morose, hyprochondriacal, unfitted to carry on his daily tasks. In this respect, then, he has "lost his life", and finds no joy in the things that make it of any value. For, true mental and physical happiness lies in the automatic functioning that is unconscious of itself Both doctor and clergy realize that one who loses himself in his work, or exerts himself for the good of others, finds in that work a happiness and peace of mind not otherwise attainable. One who is so "lost" in his work or in the service of others turns his thoughts away from himself entirely, accepts the possibilities of illness and disappointment, and "finds" his life in the thought of work well done.

In the complexities of modern life today, there is more and more need for a closer relationship between medicine and religion. Both the minister and the physician are engaged in helping men and women adjust themselves to their surroundings. Both together can help thousands of distressed men and women to a deeper understanding of themselves, to a more perfect adjustment, a more adequate control. Both the physician and the pastor must know their patients as individuals, how each reacts to his particular surroundings, and the circumstances which have made them what they are.

Jung has called attention to the fact that mental illness is closely associated with a decline in religious life; that the lack of something to tie to has everywhere produced an alarming lack of balance. In this period of restlessness, nervous strain, and disorientation of outlook, many patients have come to him, not because they were suffering from a neurosis, but because they can find no meaning in life, or were torturing themselves with perplexing questions. Unfortunately, few doctors are equal to the task, for as medical men they have felt it unnecessary to have a finished outlook on life. Of

the hundreds of patients over 35 years of age which he has treated, Jung states that "there has not been one whose problem in the last report was not that of finding a religious outlook on life". He feels that every one of them fell ill because he had lost that which the living religions of every age have given to their followers, and "none of them has been really healed who did not regain his religious outlook".

Today, when doubts, difficulties, and fear beset us on every side, and many of our traditional idols have been smashed, thousands are uncertain which way to turn. In such times as these, whether or no, the physician must oftimes play the role of priest and spiritual advisor. He must join hands with the clergyman to meet the great task of enabling human beings to enjoy a richer and fuller life. The physician should welcome religion as an ally regardless of the form it takes, because it gives the patient a sense of security and hopefulness which reinforces all the influences making for better mental health and self-confidence.

Present-day medicine, then, is realizing anew the importance of the patient as a personality; that the physician can not make blanket prescriptions to fit all cases, but must suit the cure to the individual needs and peculiarities of the patient with whom he deals. Leaders in medical service realize the necessity for giving close attention to the psychic aspects of disease, the neglect of which has given the quack and the charlatan an opportunity to exploit therapeutic resources that rightly belong to medicine. The modern physician can no longer be a mere diagnostician or dispenser of drugs, but must endeavor to help the individual orient himself properly to his surroundings, to become again a normal member of society.

Thanks to medical research today, man as a living breathing "soul", if you please, is being restored to his former place in the scheme of things. Through the concept of the organism-as-a-whole, and recognition of the fact that there is a psychological factor in every illness, there is under way a revolution in medical thinking of far-reaching consequences. The doctor of the future will not be a mere technician, ministering to the bodily ills alone, but armed with a broad, humanistic background, and the philosophical outlook of psychiatry, he will be able to help the patient as a personality to adjust himself properly to the complex forces of present-day society, and to prevent many of the ills that now beset mankind.

THE UNITED STATES PHARMACOPOEIA*

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NEW ORLEANS

Many physicians do not have a correct understanding of the relation of the medical profession to the Pharmacopoeia. The impression sometimes obtains that it is a volume principally by and for pharmacists, manufacturing houses and other commercial interests. A brief resume of the history of the U. S. P. may be of interest and I shall endeavor to place some of the facts briefly before you.

In 1817 Dr. Lyman Spaulding of New York City submitted to the Medical Society of the County of New York a proposition for the formation of a National Pharmacopoeia. This was approved and put into effect. The plan substantially was that of inviting every incorporated medical society and medical school in the United States to send delegates to participate in this work. The medical society of New Orleans gave its approval but did not send a delegate. The book was published in 1820. This first meeting, before adjourning, arranged for a decennial revision and this has been carried out to the present day. In 1830 the Surgeon General of the Army and the Senior Surgeon of the Navy were invited to participate in the convention. In 1840 it was voted to request the assistance of the colleges of pharmacy. In 1850 the colleges of pharmacy were invited to send delegates to the convention. In 1890 incorporated pharmaceutical societies were also requested to send delegates. At that time the Marine Hospial Service was also included among those eligible to send delegates. In 1900 the business details of compiling and publishing the Pharmacopoeia were turned over to a board of trustees. In 1906 the Pure Food and

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*Read before the Orleans Parish Medical Society, Monday, April, 13th, 1936.

Drug Act of the Federal Government made the Pharmacopoeia the legal standard for all medicinal agents that it contained and this was followed by similar action in the various states and municipalities. In 1909 a Spanish translation was published and this policy has been continued ever since. It has been of inestimable value in promoting pleasant relations with our sister republics. In 1910 the revision committee, which is selected every ten years to revise the text, was increased to fifty and this number has remained the same. It was also arranged that much of the work of the general committee be carried out by fifteen sub-committees. At this time also the United States Department of Agriculture and the Treasury Department were included among those eligible to send delegates. In 1920 work was further facilitated by the appointment of auxilliary members to the sub-committees.

My first official cooperation in this work was begun with the convention of 1930, when I was the delegate of the Louisiana State Medical Society. The convention met on May 13 in the city of Washington. There were about 500 accredited delegates. This large group met, elected general officers and a board of trustees, and adopted a general policy that was to be followed in the forthcoming revision. The Revision Committee of fifty was also elected, and the convention then adjourned. The General Committee remained long enough to organize, select sub-committees and actually make a substantial start on the work of revision. This General Committee consisted of 17 physicians, 33 members of the allied sciences, and the president of the convention, the celebrated clinician, Dr. Walter A. Bastedo who serves ex-officio and has participated in every meeting since that time.

Some physicians resent the fact that Revision Committee does not consist entirely of Doctors of Medicine. This plan was tried out in the earlier years but found to be totally impractical. Physicians do not have the necessary information nor have they the time or facilities for carrying on the essential work.

However, the Sub-committee on Therapeutics and the Sub-committee on Scope are entirely under the control of physicians. The first of these is headed by Dr. Henry A. Christian; the second, by Dr. Reid Hunt. The Committee on Scope which has the task of selecting every drug to be included, consists of 17 physicians and five pharmacists. It was found necessary to have some pharmacists, as they have special equipment which is essential. For example, the physicians might not feel that a certain kind of wax was of sufficient importance to be included, while the pharmacists would know that this wax was required for the manufacture of some important products which were recognized as of value in medicine. When there was any particular doubt about the value of a proposed remedy, the question was referred to the Subcommittee on Therapeutics and their opinion has always been accepted as final. You must not get the impression that these 33 non-medical members of the General Committee are all druggists. Most of them are chemists, bontanists, specialized biologists or physicists. Let me give an illustration of the necessities that arise. The Committee on Scope, for example, feels that it is advisable to include preparations of liver. The matter is referred to the Committee on Therapeutics, which expresses its approval and recommends the inclusion of preparations to be used by mouth and intramuscularly. The Committee on Scope then votes to include them in the forthcoming revision. That is just about all that the doctors are able to do. The matter must then be referred to the members of the allied sciences to determine the questions of patent, feasibility of manufacture, the processes of manufacture, standards of strength, mode of preservation, tests for purity and for identification. The physicians' part of this is only a matter of a few hours; the rest of the work is a matter of years of patient painstaking labor with unlimited facilities at the disposal of those responsible. Most of the members of the revision committee are not only specialists in their chosen fields but are professors in some of the great institutions.

The General Committee, including its various sub-committees, has met each summer and the attendance has been almost 100 per cent. These meetings were really for work. For example, at one of the gatherings held in the Pocono Mountains, the sessions continued all

day and usually lasted until midnight. I spent a total of eleven minutes in recreation and sightseeing.

The majority of the work was carried on by correspondence which amounted to thousands of pages. Every drug included in the Pharmacopoeia XI was selected on its merits after the most thorough study and discussion. I estimate that we considered in all between two and three thousand medicinal products. These included every agent in the previous pharmacopoeia, every one listed in New and Non-official Remedies and every one suggested to the Committee by any individual or group, whatsoever. In this edition you will find about 58 new products included and 108 old ones deleted.

I wish to add that in many respects, the Revision Committee of the Pharmacopoeia is the most remarkable body of men with whom I have ever been associated. I was never aware of the tendency on the part of a single individual to override any opinion of the medical members. I never knew of an instance of lack of perfect respect for any member personally or for his views on any subject. I never heard one unkind word or discourteous expression; I never sensed an instance of unethical influence.

Therefore, in presenting to all of those concerned, the United States Pharmacopoeia XI, the officers, trustees and Revison Committee give you a work that is at least the result of their best efforts and I believe that it is one that should command the respect and loyalty of every member of the medical profession.

BACTERIOPHAGE IN RESPIRATORY DISEASE*

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and
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NEW ORLEANS

The common cold is by far man's most frequent and most annoying infection. Moreover, this disorder represents a marked economic liability, for it carries a higher morbidity rate than any other disease. It may be said that a search for its direct cause has met with little success, for while from time to time, various micro-organisms have been credited as being the causative factor, today the concensus of opinion has definitely settled on the idea that the active cause of the common cold is a virus.

Although in its pure form a common cold usually runs its entire course in three to seven days, the majority of cases become complicated by secondary infections as the resulting lowering of local resistance promotes activation of one or more of the pathogenic germs comprising the flora of the normal throat and surrounding accessory cavities. These germs may include the pneumococcus, micrococcus catarrhalis, staphylococcus, or streptococcus. This flora varies according to the season of the year and particular environment, but in general the flora is more abundant during the winter months.

The tissue changes in the pure cold represent a catarrhal inflammation of the lining of the entire upper respiratory tract, involving the nasal cavities, sinuses, larynx, trachea and upper bronchi. If the condition remains uncomplicated complete resolution of the tissues occurs within three to seven days. When, however, pathogenic micro-organisms already present become activated by the virus producing the cold, the result will be one or more of the usual complications such as purulent sinusitis, laryngitis, bronchitis and eventually even bronchiectasis, all of which are so difficult to treat as to tax the ingenuity of all physicians.

Because of the relatively poor results obtained through the use of usual methods in the treatment of the common cold and its complications, and because of certain reports as to the efficacy of bacteriophage in these conditions, we decided to apply this method in a group of our cases.

Bacteriophage, according to D'Herelle, the original discoverer, is a living invisible organism which survives by feeding on other organisms. Other investigators claim that the action of bacteriophage is purely enzymatic. In our cases we used entolysate which is composed of the bacteriophage specific for various strains

*Read before the Louisiana State Medical Society, New Orleans, April 29-May 1, 1935.

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of Micrococcus catarrhalis, pneumococcus, Staphylococcus aureus and several strains of streptococci, and also the proteins of lysed Micrococcus catarrhalis, pneumococcus, staphylococcus and streptococcus in solution.

Our cases represent children from the newly-born age to 14 years and may be divided into two groups, namely:

1. Fifty cases of colds in the pure form.

2. One hundred and ninety cases of colds with complications existing for ten days or more; average thirty-six weeks. These were roentgen rayed for both sinus and lung lesions because of their marked chronicity. Each of these showed evidence of chronic bronchitis or sinusitis, or both. Five cases in this group showed definite evidence of free pus in the sinuses.

The technic employed was as follows:

Six or more drops of entolysate were instilled in each nostril every three hours or six times a day. All cases with complications lasting three months or over which showed a response to this instillation were given in addition subcutaneous injections of entolysate for the purpose of utilizing the vaccine property of the solution. The initial injections were one-half c. c. Subsequent injections were repeated at intervals of three or four days, each being increased by one-half c. c. until a local reaction manifested by redness, tenderness, and local heat was obtained. The dose was then kept at this quantity and continued until eight such injections were given.

Thus we used entolysate locally to utilize the direct bacteriophagic action and parenterally to utilize the vaccine action.

In evaluating the efficacy of the procedure, cases in which the nasal discharge and cough were relieved 80 per cent or more were considered cured by the action of the entolysate; if marked improvement ensued within forty-eight hours of the first treatment the improvement was considered merely coincidental, and was not credited to the entolysate.

The results in our series were as follows:

1. The fifty cases of common cold without complication showed an average morbidity of three to seven days. Only six of these cases developed complications lasting over ten days, and this was in the form of a cough. No controls were used. These results were recognized as ordinary, since the average cold in the pure form even without treatment usually has an average morbidity of three to seven days.

2. Of the one hundred and ninety cases in the second group one hundred and fifty-five or about 80 per cent showed 80 per cent or more improvement, and were credited as having been benefited by entolysate. The thirty-five cases or about 20 per cent in this group having the longest duration and more serious complications were followed up for an average of nine months. Of these only five cases showed a recurrence of the nasal discharge, chronic cough or both. These were the five cases which on x-ray examination had revealed definite pus in the sinuses. The remaining thirty cases showed a marked improvement in general health, a decrease in the frequency of development of colds and freedom of the previously existing chronic nasal discharge and cough.

We wish to emphasize that all cases where injections were used first responded to local treatment with entolysate.

In a separate series of twelve cases of chronic cought lasting three or more months injections were given despite the complete failure to elicit a reaction by the use of local instillations. These cases showed practically no response to the vaccine therapy also. We feel from this that when local treatment is successful the indications are that the organisms responsible for the infection are similar to those contained in the vaccine; hence, the specific action of the entolysate or subcutaneous injection.

From this work we conclude that entolysate is valueless as a treatment procedure for the common cold, but may be of great value in preventing complications. We firmly believe that this product was beneficial in 75 per cent of the chronic respiratory infections that developed as complications to the common cold. It is important to emphasize that similar good results have not been regularly obtained in adults with chronic respiratory diseases. This perhaps may be explained by the fact that infections in childhood attack young tissues which characteristically tend to re-establish their normalcy once the pathologic agency is

removed whereas the adult matured tissues have a tendency to produce changes manifested by fibrosis, thus making a return to normal very difficult if not impossible.

CONCLUSION

We do not hesitate to conclude that early treatment of the complications of colds with entolysate before definite tissue destruction has occurred will prevent in the majority of cases the usual complications, that is chronic sinusitis, chronic bronchitis and bronchiectasis.

DISCUSSION

Dr. John Signorelli (New Orleans): In accepting the opportunity of carrying out this investigation and watching the results, I particularly, as well as everyone on my staff, was aware of the fact that recommendations of the use of any panacea, or so-called panacea, for the cure of any clinical entity, was open to wide criticism. We felt that regardless of criticism we should show sufficient courage to try out new methods, particularly when sponsored by men throughout the country, and apparently giving good results. It is well known to all of you, I am sure, that as far back as one year ago the A. M. A. condemned the use of this special therapy. Within recent months, there have appeared in the journal of the A. M. A. favorable reports of the use of bacteriophage in respiratory disease. Our work, therefore, should be considered more as an effort to contribute further investigation for determining the value of this type of therapy rather than arbitrarily to appeal for its use.

There seems to be a definite place for bacteriophage in the complications which usually accompany a cold. As Dr. Hosen brought out, a cold per se not only requires no treatment, but also is not the cause of the usual treatment. It is not the cold we try to attack. What we are particularly interested in are the ravages played by secondary complications that accompany and follow the so-called common cold as sinusitis, or bronchitis. These complications following a common cold make the patient liable to infections of more serious degrees. Dr. Hosen pointed out that use of bacteriophage gives more or less favorable results in the treatment of chronic bronchitis, and these cases which are cut short in their course are a potential protection against the ravages of tuberculosis. If for no other reason than that we can show you that the use of bacteriophage reduces these complications and thereby reduces the dissemination of a disease such as tuberculosis, then bacteriophage ought to be used and the Society should, under its control, check up our observations to see whether or not we have made correct ones.

We feel Dr. Hosen's work is a definite contribution and present it for the purpose of awakening interest in this matter with the idea that other men will use the bacteriophage, not in combatting the cold per se, but in attempting to cut short the ravaging complications. I personally want to compliment Dr. Hosen, because I know that he has contributed a lot of work. I want to take the opportunity of congratulating him and attempting to encourage him to continue in this particular field because I feel that as others have reversed themselves, those men who have opposed this type of therapy will come around as they did. Many observers about a year ago also condemned the work done in the field of allergy, and in that had to reverse themselves. The field of allergy is something analagous to this in my mind.

Dr. Jos. D. Martin (New Orleans): Dr. Hosen has given a very excellent paper. I have used bacteriophage and have gotten results from it. A cold is a series of respiratory infections. If we can stop a coryza, we can stop trouble further down. I believe that the cold can be avoided if we can get our patients in time, but we seldom do. No one thinks much about an ordinary cold, except a few doctors who come to me in October and think I can abort a cold with bactoriophage.

One thing Dr. Hosen did not mention, just what his method is. I usually have the patients lie over the edge of a table and put the drops in the nose and let them stay down three to four minutes each time and then sit up suddenly and throw the head forward. That way the drops get into the sinuses which does more good than just dropping them in.

Dr. D. O. Willis (Leesville): I would like to ask Dr. Hosen just one question. I notice he said he gave this substance in increasing doses until he got a certain reaction. I would like to ask if he then discontinues the use of the vaccine when you get a reaction, or do you continue with it for a longer period?

Dr. S. Chaille Jamison (New Orleans): I think bacteriophage is one of those biologicals that we all look forward to with the very greatest hope. On the whole, I am afraid it has disappointed us. Now, as I understand bacteriophage, whether it be an enzyme, or whether it be an actual living organism, is still open to some question. I do understand from what I have read that it has been quite clearly shown that bacteriophage is extremely specific for the particular organism by which it is produced, that it is even more specific than antibodies. For instance, if you try one form of staphylococcus, alba or aureus, it is not specific except for the particular organism.

As I understand the subject until success has been definitely proved it is not the logical application, and I think D'Herelle himself has backed

down on this question. Certainly, it is one that needs a great deal of investigation and the work so far is experimental. We should not feel that it is yet ready for clinical application, that it has not stood on the firing line so far.

I suggest that if you are not familiar with it that you read the whole review of it under the special articles which have been published by Dr. Stanhope Bayne-Jones, who is going to make the oration here.

It is of interest in the common cold and the question we have to answer is: clinically what are we going to do about it? And how about cold vaccine? I have carefully vaccinated myself each Fall so I would not get a cold during the hunting season. I have never had any respiratory complications until last year, when after three years of careful vaccination, I got sinusitis. You might argue, therefore, that vaccination is worthless, or you might say, "Well, Jamison did not get pneumonia. It prevented him from getting pneumonia." One of the clinical observations formulated by our forefathers was if you give an opiate at the beginning of a cold, morphine or something of that sort, you can break up the cold. I think that is standing up pretty well under the test of time. The minute you get a cold, a little morphine by mouth will often abort the cold at once. What our forefathers used was Dovers bitters or ipecac.

I enjoyed the paper but want to sound a note of warning about embracing bacteriophage too hastily as it is still too much in the experimental stage.

Dr. B. G. Efron (New Orleans): I would like to ask the essayist why he attributes all the therapeutic benefit to the bacteriophage when he used a mixture of phage and non-specific protein? We understand that non-specific protein may have some beneficial effect on the course of various chronic diseases. Personally, I cannot conceive of a cold per se lasting five years. Undoubtedly some of the chronic coughs reported might very well have been allergic in origin. Before closing, I would like to ask the essayist again how he distinguished the action of the "phage" from the action of the non-specific protein when both were together in the same mixture?

Dr. R. McG. Carruth (New Roads): I very much enjoyed Dr. Hosen's paper. I do not recall ever having had a real "bad cold" since childhood, excepting only several very mild attacks of "flu", and these from mass absorption after several months' exposure during extended epidemics. I do believe very much in bacteriophage, but personally I depend upon my phagocytes and—God. Many years ago, I started a "Methuselah Club", Of course, heredity helps much, but common sense diet and common sense rules of living go a long way.

Dr. Harris Hosen (in conclusion): As to the question about the number of injections given; we give eight injections after finding the dose that causes a local reaction manifested by tenderness, heat or redness.

D'Herelle, the discoverer of bacteriophage, claims that the bacteriophage consists of ultramicroscopic organisms which act specifically upon other organisms. It is not necessary to have the exact strain of bacteriophage in order to get good results. For example, the staphylococcus bacteriophage will act specifically on several different strains of staphylococcus.

Dr. Efron suggested that the good results obtained in this series was due to the vaccine quality and not the bacteriophage action of the entolysate. It is true that in the cases which received injections, the vaccine property was very helpful, but it acted also as a supplementary treatment to the specific phage. In these cases we first used the nasal instillations to test the specificity of the product. The cough in each case stopped or was improved 80 per cent within 48 hours which showed that the bacteriophage was specific. Consequently we used the injections, for then we knew that the vaccine in the entolysate would be specific for the type of organisms causing the infection. From the vaccine treatment we expected to develop immune antibodies which would take care of any future flare-ups which might occur in the presence of chronically diseased tissues.

In about 10 or 15 cases not reported in this paper, we used similar subcutaneous injections after the nasal instillations failed to alleviate or completely stop the persistent cough. The results of this vaccine treatment were very poor.

PAINFUL FEET*

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It has been said that everyone has trouble with his feet sooner or later and that all adults have deformed feet. Granted that this is only partially true, you will at least agree that there is sufficient trouble to warrant medical interest in painful feet. From the viewpoint of the general practitioner, there are two types of foot cases of especial interest. The first class of patients are those with voiced foot complaints and obvious signs of foot disorders. They would come to your offices more frequent-

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

ly if they received more sympathy and adequate treatment for their complaints. The second type of patient is the one who has symptoms remote to the feet, such as pain in the calf muscles or thighs, backache, headache or nervousness, with almost innumerable complaints. This latter type of case has to be specifically questioned and examined for foot disorders in order to arrive at a correct diagnosis and effective plan of treatment. So numerous are these patients that it would be worth while to examine the feet in the course of every general physical examination.

General practitioners have opportunities to benefit their patients and themselves and, at the same time, to discourage quacks and irregulars practicing as "foot specialists", if they give particular consideration to their patients' outspoken or vague complaints referable to their feet.

Local and remote pains caused by foot disorders respond to intelligent treatment or advice if the physician has the cooperation of the patient.

Consideration of the feet should include a careful history and clinical examination. For this purpose the questions ennumerated below would be of assistance.

1. Is there pain, swelling or discoloration of the feet? If so, exactly where?
2. Does activity or rest affect swelling or pain?
3. Do the feet ache during the night, or only during daily activities?
4. Are there cramps in the toes or leg muscles?
5. Are there corns, callosities or warts on the feet? If so, at what points?
6. Has there been a pronounced gain or loss of body weight in recent months or years?
7. What types of shoes and socks are habitually worn? Have there been any recent changes of footwear?
8. What is the occupation and environment of the patient?
9. What is the patient's age and condition of general health?
10. Is there any pain in the leg, thigh or back?
11. Is there a history of arthritis involving other joints?
12. Is there a tingling, burning sensation or excessive perspiration of the feet?
13. Is there a history of injury?

ORDER OF EXAMINATION

1. Observation of the patient's posture, gait and footgear as he stands and walks.
2. With the patient undressed and barefooted, attention should be given to his gait, posture, weight and muscular development.
3. With the patient on an elevated stand and the examiner seated on a low stool, study should be made of the feet at rest and under weight-bearing with the following points in mind.
   a. Color of skin and presence of varicosities;
   b. General contour and attitude of feet viewed from the front, side and back;
   c. Position of the toes and heels;
   d. The presence or absence of corns, callosities, bursae, and warts;
   e. Range of voluntary motion in all joints;
   f. Palpation to determine:
      1. Passive motion of all joints
      2. Temperature of skin and response of capillary circulation to pressure
      3. Tenderness over joints, ligaments and callosites
      4. Presence of pulsation in the dorsalis pedis and posterior tibial arteries.
4. Examination of shoes and socks as to size and points of greatest wear.
5. General physical examination.

The abnormalities in the course of taking the history and studying the patients as above outlined will generally fall into one of the following groups.

CLINICAL GROUPS

A. Postural or static disorders of the feet
   1. Pronated feet
   2. Strained arches (strained ligaments and muscles)
   3. Flat feet
   4. Flattened metatarsal arches, metatarsalgia
   5. Hallux valgus and rigidus
   6. Hammer toes
   7. Ingrown nails
   8. Corns and callosities

B. Traumatic disorders

1. Fractures
2. Sprains
3. Wounds of soft parts

C. Organic diseases of the feet
1. Arthritis localized to ankle joint, mid-tarsal or toe joints
2. Bone infections
   a. Osteomyelitis
   b. Tuberculosis
   c. Epiphysitis
3. Soft part affections
   a. Plantar warts
   b. Abscesses
   c. Tenosynovitis
   d. Adventitious bursae
4. Circulatory diseases
   a. Thromo-angiitis obliterans
   b. Endarteritis (senile)
   c. Varicose veins
5. Trophic or nerve disorders
6. Tumors of bones, tendon sheaths or nerves
7. Contractures following burns, wounds or infantile paralysis

D. Chronic systemic disease
1. Atrophic arthritis
2. Arteriosclerosis
3. Diabetes

E. Congenital and birth deformities
1. Spastic paralysis
2. Clubfoot

STATIC DISORDERS

The commoner foot disorders that we encounter in adults are static or postural in origin, resulting from faulty footgear, incorrect habits of standing and walking, inadequate musculature or increased weight or activity.

Pronated feet are the most common of the postural defects noted in routine examinations of the feet. Probably everyone has some degree of pronation at some time in life. This is an anatomical deformity of the foot, often accompanied by more or less flattening of the longitudinal arch. This, of itself, is not an alarming defect. If allowed to persist, however, it is often the precursor of distressing symptoms of the feet and serious disability. In the growing child, particularly, is this true, as the bones of the feet may become molded to assume a permanent structural deformity. In the adult foot, pain and disability are likely to follow closely the attitude of pronation, especially if the person gains excessive weight, becomes debilitated or suddenly changes to an occupation that requires constant standing. A pronated foot is an abnormal postural attitude amenable to treatment and as deserving of correction as curvature of the spine. It is in the prevention of these permanent changes that the physician can aid nature and thus prevent a potential weak foot.

The treatment of pronated feet is accomplished by two measures. The first step is designed to protect the arch and realign the foot by means of correct shoes with the addition of specific supports built onto or placed inside the shoes. These are to act as a crutch or support until the muscles are strong enough to carry their load. The second measure consists of prescribed exercises which are intended to strengthen the muscles that support the arches and instructions to promote the general health of the individual. In the case of a child who is too young to cooperate by taking exercises, the protection by shoes and supports should be continued as long as necessary. Once a correct position of the feet is maintained by the patient's own muscles, the crutches or supports should be discarded.

Children's shoes should have a fairly rigid sole with no heel or one not more than one-quarter inch high. The correction designed for treatment of pronated feet in children can be placed on the inside. This correction consists of a wedge of felt or hard rubber tacked to the inside sole of the shoe under the heel and instep, varying in thickness on the inner side from one-eighth to one-quarter inch and beveled off to a knife edge on the outer aspect. Oftentimes with the small youngster it is necessary to make the pressure on the inner side uncomfortable in order to make him use his leg muscles on the inner side to pull the foot into the correct position in walking. The same foot position can often be obtained by inserting a leather wedge with its base one-eighth to one-quarter inch thick between the layers of the heels and soles of the shoes, the base of the wedges being on the inner border of the shoes. In the milder cases Thomas heels raised one-eighth to one-

quarter inch on the inner side are adequate protection.

The adult shoe should have a fairly thick sole and a rigid, adequately wide shank. As a rule, the heel should not be higher than one inch. The heel seat should be sloping from side to side and gently blended into the shank anteriorly. The inner border of the sole should be on a straight line with that of the heel and there must be adequate room for the toes. The uppers may be low or high quarters, but should fit snugly around the heel and midtarsal region. A lace shoe is preferable because it permits adjustment.

The correction that is added for pronated feet in the adult cases, as a rule, is a support for the longitudinal arch, either of leather or hard rubber, tacked on the sole inside the shoe. For many cases, a Thomas heel raised one-eighth to one-quarter inch on the inner side will give sufficient protection.

Strained arches may be acute and severe, or mild and chronic. Patients with the former type usually come to the physician seeking relief for their feet, while the latter may come with remote complaints and perhaps not mention their feet, if not specifically questioned.

As a rule, the former type of patient will state that his feet are hurting, tire easily and are tender under the arch and, perhaps, ache at night. Oftentimes, upon questioning the patient, you will find that he has recently gained excessive weight, had some acute illness, is suffering from some chronic illness, has recently changed his occupation or environment, or changed from a rigid to a flexible shanked shoe. The patient with chronic, mild strain of the arches will admit practically the same history upon close questioning. His principal complaints, however, may be of undue fatigue, nervousness, pain in the lower back or over one sacroiliac joint, chronic or recurrent attacks of sciatica or pain in the back of the thighs. The signs of strained arches are rather definite. On observation of the patient walking, there may be a limp referable to both feet and a tendency for the patient to sit rather than stand. With the shoes and socks removed and the patient in a standing position, there is usually some pronation of the feet and flattening of the longitudinal arch. In the sitting position, there may be noticeable flattening of the metatarsal arches and pain on attempting to flex or extend the toes. On palpation, there is tenderness over the plantar fascia and the under surface of the tarsal bones. There is also usually tenderness over the metatarsal heads and there may be tenderness over the inner side of the knees and lower back muscles. Dorsal flexion of the ankle is often limited and when performed with the knee extended, produces pain over the hamstring tendons or along the course of the sciatic nerve.

Treatment of the average case consists of a felt pad shaped to fit the contour of the metatarsal and inner longitudinal arches as indicated, the pad being strapped in position with adhesive tape. This constitutes a temporary measure, but when it is followed by partial or complete relief, it confirms the diagnosis of strained arches. The patient is then given instructions about the type of shoes to be worn and, as a rule, is given a prescription for the special shoes and referred to a store and salesman who is accustomed to fitting according to instructions. When the patient has been fitted, he should return to have the size and type of the shoes checked, to have arch supports inserted or to obtain instructions for the shoemaker to make any changes indicated. The proper foot exercises are then taught and the patient is advised to practice these night and morning. As a rule, he is requested to return for observation and adjustment of the supports about once a week until comfortable. Results from the treatment depend to a great extent upon the cooperation of the patient in wearing the shoes prescribed and a systematic following of the exercises.

The term "flat feet" deserves a word of explanation. It describes a foot as being flat, or without arches. In some races and some individuals this is so characteristic that it may be considered normal. Indeed, it must be considered so, because this type of foot is often as strong, if not stronger, than the arched type of foot. We must, therefore, realize that the height of the arches is no indication as to the strength or serviceability of the foot. The flat feet that interest us are those associated with pronation of the heel or forefoot. This is the

foot that should normally be arched, but through muscular weakness, the body weight has been carried on the ligaments until they have stretched and the arches have finally flattened. Pain and disability are always associated with this type of flat foot in contradistinction to the normal or racial flatfoot and for this reason, here should be no mistake in diagnosis. The former type needs no treatment. The latter type requires the same measures that are employed to relieve strained arches.

In many cases the conservative methods of treatment described in the preceding paragraphs prove inadequate. For these patients surgical procedures have been devised and are in use which admirably serve to correct the deformity and make a useful foot. Operative correction is most applicable, however, to patients in the adolescent years.

The integrity of the metatarsal arch depends upon the strength of the flexors and extensors of the toes and an even distribution of weight between the heel and forefoot. Fallen metatarsal arches constitute a very important and real finding which is confined almost entirely to female adults. I feel that it is a natural and inevitable result of the universal vogue of wearing shoes with high heels and narrow toes. Metatarsalgia and painful callosities beneath the balls of the feet are the usual accompaniment of flattened metatarsal arches. Patients with these complaints will also very often have contracted heel cords and they suffer from cramps in the calf muscles if they endeavor to wear shoes with low heels.

The symptoms usually described consist of pain in the front part of the feet, cramps in the toes, painful callosities under the balls of the feet and inability to walk in low heeled shoes. On examination there is flattening of the metatarsal arch with the foot at rest.

Treatment should be directed towards protection of the heads of the metatarsals by means of shoes with broad toes and low heels, with a support placed just back of the metatarsal heads. At the same time, the patient should be taught special exercises and how to use her toes in walking so as to regain the normal strength and contour of the metatarsal arch.

Hallux valgus (bunion) is a deformity which to some degree is almost universally present among adult women. It is seldom seen on men's or children's feet. These facts alone make it evident that bunions are the result of ill fitted stockings and narrow toed shoes with high heels.

There are two general methods of treatment, depending upon the severity of the deformity. Conservative measures only may be successful in the milder cases, and, perhaps, will give some relief in the more severe cases. A shoe with a rigid shank and heavy sole, with width across the toe region, E or EE last, and a straight inner border, must be prescribed and carefully fitted. In addition, a metatarsal lift with its maximum thickness placed just back of the first metatarsal head should be fixed in the shoe. A small felt pad placed between the first and second toes is of further assistance in restoring the toe to its normal position. Special exercises to develop the flexors and extensors of the toes and improve the range of voluntary motion in them are most helpful.

For the more pronounced degrees of deformity, there are several surgical procedures, any one of which gives excellent results when performed by a competent surgeon. The operative procedure should be supplemented with careful convalescent care and the constant use of properly fitted shoes.

Hammer toes may occur as a part of the congenital deformity of hollow foot or clawfoot, or as a static deformity, resulting from the use of short socks or short, narrow shoes. The treatment for mild cases of short duration is the use of correct shoes and socks and exercises to restore the strength of the muscles controlling the foot and toes. Correction of the more fixed hammer toe deformities requires tenotomies together with arthrodesis of the proximal interphalangeal joints.

Ingrown nails and various other affections of the nails may be relieved by a competent chiropodist who usually will require several months for careful nail trimming and packing cotton beneath the nail edges. Such treatment will avail little unless the patient abandons the use of narrow toed short shoes and socks. For the persistent intractable case, about one-

fourth of the nail and its matrix should be removed. This procedure gives excellent results in experienced hands, provided the patient cooperates thereafter by the use of correct footgear.

Corns and callosities are evidence of misfitted shoes. They are nearly always accompanied by the various anatomical deformities of the feet described in preceding paragraphs. Corns produce the pain which directs the patient's attention to his feet and while temporary relief is often given by the chiropodist who softens and removes the callosities, permanent relief can be had only when the patient wears correct shoes and socks with the addition of properly designed and placed supports.

TRAUMATIC DISORDERS

The bones of the foot are no less liable to fracture than bones elsewhere in the body. The diagnosis depends upon the history, clinical findings and roentgenograph. This latter diagnostic measure is rather important from the standpoint of diagnosis between fracture and sprain or tearing of the ligaments. I believe the treatment should be practically the same i. e., immobilization, preferably in a plaster cast for two to eight weeks, depending upon whether you are dealing with a fracture or sprain. In the treatment of sprains or torn ligaments, I do not believe that the commonly used adhesive dressing with continued weight-bearing is conducive to healing or a favorable end result. The after care of these injuries to the foot is equally as important as the initial treatment. Weight-bearing should be begun in a properly fitted, correct type of shoe, oftentimes with added arch supports, as indicated.

Certain organic diseases should be kept in mind during every foot examination.

ARTHRITIS

The most frequent organic lesion is arthritis of one or more joints in the foot. This inflammation may be localized in the joints of the foot or may be only a part of a generalized arthritis. It may be traumatic or infectious in origin. Treatment of the arthritis, whether localized or general should be directed to its cause. For the traumatic type, relief may be given by shoe changes and arch supports to redistribute the weight and splint the affected joint. Infectious arthritis in the feet calls for a careful search for and removal of any focus of infection elsewhere in the body.

BONE LESIONS

The bone infection most often encountered in the foot is osteomyelitis, but this is seldom of the hematogenous variety. It more often follows wounds of the soft parts and compound fractures. Tuberculosis, syphilis and blastomycosis are occasionally seen. Epiphysitis, osteochondritis and periostitis are occasionally noted and should be kept in mind. The treatment for these various conditions when found in the feet is the same as that used when the same lesions are found in other bones.

LESIONS OF THE SOFT PARTS

Soft part affections, such as abscesses, tenosynovitis, adventitious bursae and plantar warts occur often enough to be important from the standpoint of differential diagnosis. The accumulations of pus should be evacuated; inflamed tendon sheaths require rest, heat and light massage; adventitious bursae may absorb when relieved from pressure and irritation or may require excision; plantar warts should be exercised or destroyed by the use of radium or roentgen ray.

CIRCULATORY DISTURBANCES

Disordered circulation in the feet may cause pain and disability resembling the symptoms associated with the various static disorders.

Thrombo-angiitis obliterans, described by Buerger, produces a blanching or redness of the toes with pain and tingling. Senile endarteritis with deficient circulation and consequent intermittent claudication results in symptoms of tired, aching or cold feet. Occasionally varicose veins with poor return circulation produce fatigue, swelling and aching of the feet. None of these conditions will be improved with shoe changes and arch supports. They must be differentiated from static deformities and appropriate treatment instituted for the actual lesion present.

NERVE LESIONS

The foot may be heir to and show effects of any and all nerve injuries or diseases. Examples of such related deformities, are those seen with the spastic type of paralysis caused

by upper motor neuron disease or injury; those associated with the flaccid types of paralysis from lower motor neuron lesions following anterior poliomyelitis or cord injury. Others result from peripheral nerve injury or neuritis and some are purely hysterical in origin. Each of these conditions requires careful differential diagnosis and appropriate treatment.

TUMORS

Occasionally tumors originating from the bones or soft parts may be found in the feet. These may be benign or malignant and the treatment will depend upon the diagnosis.

CONTRACTURES

Scar tissue contractures following burns or infected wounds often produce a foot deformity which will require excision of the scar, tenotomy and manipulation, followed by skin grafting procedures.

CONGENITAL DEFORMITIES

Certain congenital deformities such as clubfeet, supernumerary digits, accessory bones, or bifid toes are relatively rare, but when given correct treatment, result in little or no disability.

SUMMARY

Prevention of painful feet will require education of the general public concerning the selection of shoes to fit the feet and not to please the eye. Cooperation of the shoe and stocking manufacturers will be needed to make and stress the correct type of footgear, rather than to place emphasis upon the style of footwear. Shoe stores and salesmen can further the preventive measures by making these correct shoes and socks available to the public.

The responsibility of instituting this forward venture towards foot health will, to a great extent, rest upon the family physician. He should deem it his duty to make an examination of the feet a part of his routine and should find pleasure in giving instructions to his patients concerning the care of their feet and the selection of correct shoes and stockings.

If general practitioners and specialists in all branches of medicine and surgery will assist the orthopedic surgeons by listening to patients' complaints referable to their feet and devoting a little more time to foot examination, much can be accomplished toward authentic education of the public in the prevention, care and cure of painful feet.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

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News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

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THE SUMMER SEASON

For many weeks Louisiana has been experiencing a long hot spell with very little moisture coming down from the heavens on her fair land. However, at no time has the state suffered from the extreme heat that has been noted in other sections of the country and while the rainfall has been minimal, nevertheless the fields and woods of the state are still a beautiful verdant hue. Our state is doubly blessed; the winters are propitious and the summers are usually delightful. However, there is a certain amount of lethargy in the summer atmosphere, the incidence of sickness falls off and the doctor feels that he is entitled to a brief respite from his professional activities. The month of August is usually the month that vacation time takes place. That the doctor is not so active in his professional routine is obviously seen in the pages of the journal; staff meetings fall off, parish meetings are done away with and these extra professional activities of the physician are deleted for a time. A well earned vacation is due every physician to get away from the petty annoyances of practice, to relax thoroughly and to obliterate from the mind medical thoughts. A change is indicated for every doctor. A happy vacation well spent refreshes one, may add years to his life and certainly tends to improve his disposition. It is our wish that you will have a successful and enjoyable period of summer relaxation.

THE SCOPE AND CHARACTER OF MEDICAL BOOK REVIEWS

Some years ago the late A. O. J. Kelly, at the time editor of the American Journal of the Medical Sciences, prepared for reviewers of books for his journal a brief description of what a review should be and what it should contain. This short dissertation on reviewing of books is so pregnant with good advice that it might be well to record it here in part. Kelly says that the review of important books should be "descriptive, analytical and critical." There should be considerable difference between a review and a perfunctory book notice. Books that are of minor importance, reprints, new editions which are only slightly revised, should not have extended comment. The first edition of a book of some importance should be reviewed fully and carefully. The main purpose of a review is to inform the reader as to the "nature, character and scope of the book. The review should be, first of all, descriptive. Analysis and criticism are worthy objects of reviewing and should claim a considerable portion of the reviewer's attention—to the end that the reader may have the benefit of the opinion of one qualified to speak with authority." The criticism may be commendatory or derogatory.

The reviewer should be motivated by a spirit of sympathy and kindliness to one who has devoted the time necessary to prepare a book but he should maintain a judicial point of view, giving praise if deserved and condemning if necessary. Kelly says that the good feature of the book should be weighed against the poor and "neither the one nor the other should be magnified."

In this short exposition of the purposes of a book review Kelly points out that the most important feature undoubtedly is acquainting the reader of the review with that which is in the book. After all, if the reader knows the contents of a volume and wants to read the book he probably will have sufficient judgment to determine the merits of the book. Most reviewers have the habit of giving most fulsome praise to a new book just because it is a new book. Extreme laudation or markedly adverse comment, in the great majority of instances, is not necessary. If the book fails in some respect a few words can point out wherein it is lacking. If the book is most admirable a line or two of commendation is all that is necessary.

ANEURYSM OF THE ABDOMINAL AORTA

Aneurysm of the abdominal aorta is a pathologic state which is quite rare yet time and time again this diagnosis is made in patients with thin abdominal walls and with the ptotic habitus who have dynamic aortas. That the condition is rare may be substantiated by the study by Kampmeier* published this month, of a series of sixty-eight cases of abdominal aneurysm which were in the New Orleans Charity Hospital. There were sixty-eight acceptable cases in a thirty year period, during which time there were 215,516 admissions to the medical wards. Because of its rarity and because of its frequent misdiagnosis Kampmeier's paper is particularly pertinent. Unless the physician is acquainted with the important criteria for diagnosis a misdiagnosis is likely to result.

In this statistical study of abdominal aneurysm it was found in these sixty-eight cases, incidentally the largest group ever collected from one institution, that the ratio of white to colored was approximately 1 to 4, and almost the same proportions are maintained between the female and male sexes. Most of these individuals did hard physical work and the majority of them were between the age of 35 and 45. Two-thirds of the patients were under 45 years of age. Syphilis as the etiologic factor was determined by the Wassermann reaction in thirty-nine instances, of which there were slightly less than 50 per cent positive reactions. A few patients gave the history of a sore on the penis in whom the Wassermann reaction was negative so that actually about 57 per cent had either historical or immunologic evidence of this disease. Very few patients had arteriosclerosis. Tuberculosis was of no import in etiology, nor was trauma, but the majority of the patients had syphilis as the background for the production of the aneurysm.

Pain is the important presenting symptom. Nine-tenths of the patients had this as their chief complaint. The pain was very varied, sometimes it was localized in the abdomen, in thirty-two patients; at times in the back, twenty patients. Of the other sixty patients giving a satisfactory history the pain was scattered here, there and everywhere. This pain was usually referred downward towards the lower extremities, it was constant in twenty-one cases complaining of pain and was intermittent in twelve. No description was available in the other patients. The pain is a severe pain, described as being throbbing, like a knife thrust, or lancinating. Some pictured it as colicky and others said it felt as if it was a stinging sensation.

On physical examination a palpable tumor was found in 60 per cent of cases. This tumor varied considerably in size; in some instances it was small and in others quite enormous. It was associated in most instances with expansile pulsation but a thrill was present in only three cases. In one-half of the patients a systolic bruit could be heard over the tumor. Except for the presence of a mass the physical examination recorded little of moment.

The author stresses the importance of the roentgen ray in the diagnosis of abdominal aneurysm. The important feature is the erosion of the vertebrae without destruction of the in-

*Kampmeier, R. H.: Aneurysm of the abdominal aorta: a study of 73 cases, Am. J. Med. Sci., 192:87, 1936.

tervertebral discs. In thirty-two of the patients in whom the roentgen ray was employed for diagnosis this finding was present in three-fourths of them. The roentgen ray findings, the expansile tumor and the characteristic pain usually suffice to make the diagnosis. Kampmeier points out there are quite a number of other conditions which may mimic this condition of which he is writing but most of them are rare except for the pulsating aorta in advanced arteriosclerosis, or in thin, neurotic individuals.

It is rather interesting to know that the great majority of these patients died as result of rupture of the abdominal aneurysm. This observation is substantiated by necropsy. Thirty-one of thirty-eight patients who were autopsied showed that death was due to hemorrhage. While there is a sudden sanguination most frequently, a considerable number of patients died as result of slow bleeding. Lastly it might be said that the majority of the patients die within six months from the first appearance of symptoms.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

HUTCHINSON MEMORIAL CLINIC

Symposium on Immunology: Conducted by the Department of Preventive Medicine, Dr. W. H. Perkins presiding.

Dr. Georgiana von Langerman (Department of Preventive Medicine): The controversy regarding the humoral and cellular theories of immunity is now of historical interest only, and it is practically generally accepted that humoral antibodies, as well as phagocytes are lined up in defense of the host. The discussion at present concerns the relative importance of these factors, with the additional consideration, advanced and supported by Reuben Kahn, of the role played by the fixed tissues in the defense mechanism.

Even though the modern trend is to consider the occurrence of antibodies in conditions of actual protection as distinctly subsidiary in importance to cell activity, antibodies are of extreme value in passive immunization, in increasing phagocytosis, and also as diagnostic procedures. Gay, therefore, emphasizes the importance of studying the location and method of antibody formation. He states that even though Manwaring and others have produced antibodies in vitro in the absence of cells in a serum-antigen mixture, cell enzymes are present in serum. He believes that cells form antibodies, but admits the possibility of antibody formation occurring in cell extracts, being formed by cellular proteolytic enzymes from antigens rather than built up from the host proteins. As regards the locus of antibody formation, the most convincing results are those arising from the use of blockade, pointing to the macrophage system as the source. During ten years, 75 per cent of investigators have found variation of antibody formation when blockade is used, usually in the form of a decrease, although an increase has sometimes been obtained. Gay believes the macrophage system to be the source of antibody formation, and considers these seemingly divergent results consistent, claiming that small amounts of dye stimulate the antibody producing cells, and large amounts suppress their activity.

Active Immunity: The few successful instances of transmission of passive immunity has unquestionably engendered an exaggeration of the importance of antibodies in active immunity. Antibodies are invariably present in lower concentrations in actively immune individuals than in the hyper-immune animals used as producers of antiserum, and are in some instances entirely lacking in individuals who are most highly protected against an infection, by recovery. These facts have led to a reconsideration of the importance of the tissues, as contrasted with the fluids of the body, in conditions of active immunity in recent years. Gay and Morrison studied the defensive mechanism of the pleural cavity of rabbits against experimentally produced infection with a highly virulent hemolytic streptococci. They found that when a sterile, non-specific irritant was injected into the pleural cavity prior to the injection of the organisms, granulation tissue resulted with an outpouring of large numbers of polymorphonuclear leukocytes, followed by mononuclears, both in the tissues and exudates. If streptococci were introduced when neutrophiles predominated, the animals succumbed as readily as the controls, but after the mononuclear phagocytes were mobilized, the animal could withstand repeated lethal inoculations, both on the side in which the granulation tissue was, and on the opposite, the clasmatocytes migrating in Gay's "transpleural mobilization".

Passive Immunity: As regards passive immunity, the role of the phagocytes seems at first glance unimportant, in view of the quite evident effectiveness of the antitoxin therapy of diphtheria and tetanus, but champions of cellular immunity have challenged this conclusion. Gay and his coworkers have emphasized the failure of antiserums as directed against bacteria themselves instead of their toxins, with the sole exception of the meningococcal serum, and the effectiveness of this one

they attribute to the fact that the site of injection is an area in which a cellular exudate is available, as well as the organism. They attribute the failure in other instances to the absence of sufficient tissue response in the normal recipient to complete the tropinizing effect furnished by antiserum.

Local Immunity: Active local immunity as related to active generalized immunity has afforded an additional ground for controversy. At first it was believed that this phenomenon was a local mobilization of antibodies coincident with a state of general active immunity, but it was soon found that local immunity could be produced without generalized protection of other areas. Opie concluded that on injection of antigen into tissues, the resultant antigen-antibody complex acts as a tissue irritant, resulting in an inflammatory reaction. He observed that antigen injected into the skin of normal rabbits passes rapidly into the blood, whereas antigen injected into immune animals is fixed at the point of injection. Stuppy, Cannon and Ralk protected the respirator tract of rabbits against intrabronchial insufflation of pneumococcus by spraying the throat with the organisms, without evidence of generalized antibody production, but with an outpouring of clasmatocytes. These facts indicate the importance of the macrophage system in local immunity, but even Gay and his adherents grant the necessity for additional information before admitting or denying the presence of an adjuvant tropin effect as in generalized immunity, or whether the macrophages are solely responsible.

Kahn's Theory: The significance of the tissues in a study of local immunity would be incomplete without a consideration of the recent work of Reuben Kahn, in which he challenges the concept of the role which antibodies play in immunity, and the interpretation of the part taken by the fixed tissues in bacterial invasion. He confirmed the fixation phenomenon of Opie, and also the lack of parallelism between skin reaction and circulatting antibodies. He interprets these phenomena as indicating that "tissues develop the capacity to combine with antigen independent of antibody". Kahn also questions the conception that the fixed tissues, although bacterial invasion usually primarily involves them, are in a hypersensitive state to the very organisms against which the protective forces of the fluids and phagocytes are directed. His experiments showed that not only does the tissue react with antigen independent of serum precipitins, but that the various tissues possess the ability to do so in different degrees. He calls attention to the fact that the inflammatory responses of a tissue, such as the skin, to injected organisms seems to be basically a specific response to protein, and that while exotoxin and endotoxin may influence this response, it is not eliminated in their absence. He states that in the tissue reaction of skin upon injection of an antigen, there are seven phases, which while inseparable from one another, are still definite:

1. Combination between antigen and tissue.
2. Localization of antigen in areas of injection.
3. Alteration in tissue.
4. Inflammation at the area of injection.
5. Destruction of antigen in area of injection.
6. Elimination of end products locally.
7. Healing of tissue.

Kahn considers the study of tissue responses in immunity as including four states: the non-immune, incubation, immune, and dis-immune.

The *non-immune state* is that in which an animal does not possess a capacity for combining with, localizing, and destroying antigenic substances by means of the inflammatory reaction. The animal lacks the capacity for specific tissue response.

The *state of incubation* is that which is found as soon as the tissue cells of an animal come in contact with a foreign protein, the skin acquiring some specific combining capacity for antigen within two days after an immunizing injection, indicating that the property of tissues to react with antigen may be one of the earliest manifestations of the oncoming immune state.

The *immune state* is the period when the tissues have developed their capacity of reacting with antigen. This capacity was found to be influenced and modified by many conditions—chemical composition and physical, the amount injected, the route of injection, frequency, and age of the animal.

The name *dis-immune state* is that applied by Kahn to the state found to occur following the intravenous injection of antigen into an immune animal, after which an additional dose of antigen into the skin was found to produce no local inflammatory reaction. The tissues have lost their capacity to specific response, and the antigen diffuses as in the non-immune animal. The dis-immune state is the reverse of the immune state, and only an immunized animal can be dis-immunized. One outstanding feature of the dis-immune state in rabbits is its short duration of a few hours to a day, and the fact that it appears to be a strong stimulus to the animal to revert rapidly to the immune state. Kahn points out the possible relationship between the dis-immune state of rabbits and anaphylactic shock in guinea pigs.

In studying the relation between specific tissue response and antibodies, Kahn found that animals immunized with vaccines of staphylococcus, streptococcus and colon bacillus, show gradual increase in the skin capacity to produce tissue response, while the antibody response to these organisms is slight. He also found that the capacity of the tissues to respond to injected protein antigens ap-

pears before precipitins can be found in the serum, and remain for months after the precipitins have disappeared. He therefore concluded that "the basic change as a result of immunization takes place in the tissue cells", and that apparently "antibodies represent a secondary manifestation of immunity", and "that the primary manifestation of immunity centered in the tissue cells".

Kahn also opposed the use of the term "local anaphylaxis" in denoting specific tissue response, stating that it is really the reverse reaction, as a prerequisite of anaphylactic shock is dissemination of antigen throughout the body, while tissue response is a phase of immunity and anaphylaxis of dis-immunity.

Allergy in man, Kahn also explains in the terms of local tissue response. He postulates that so-called allergic manifestations shown to non-bacterial elements such as pollens, may be similar to the reactions of the skin, and nasal mucosa, to infectious organisms and their products. He believes that in the allergic individual we may be dealing with some disturbance in the immunity regulating mechanism, and that the "desensitizing" effect of minute doses of substances may be in reality due to an increase of the immune state.

In conclusion Kahn believes the union between tissue and antigen is of the same immunologic nature as that between phagocytes and antigen, or immune serum and antigen in vitro. The specific tissue response is not considered as an expression of hypersusceptibility, but is interpreted as one of the most important defense mechanisms of the immune animal against bacterial invasion.

Dr. Perkins (Department of Preventive Medicine): I am presenting the opposite of Dr. von Langerman's review by summarizing the humoral viewpoints as expressed by Wilson, Topley and Zinsser. Topley says that we are dealing with terms which are mystical in character and are using such terms as lysin, agglutinin and precipitin, without knowing what they are. Their impression is that these are all simply end processes, they are not entities within themselves. They are mechanisms which result in the phenomena which we call agglutinations. They say we have degrees of immunity ranging from zero to complete immunity. The word immunity is, itself, a poor word. There are some animals which cannot be made immune or be infected by certain organisms. In them, immunity in the sense in which we use it, is not present. In our terms it is zero, because the organism cannot affect the animal concerned. On the other hand, we have organisms which can be infected by the invading organism, and we have complete immunity. The two terms most commonly used in the conception of immunity are antibody and antigen. The most recent experimental work in immunity has been directed toward endeavoring to discover the nature of the antigen. The sum of this work reveals the fact that antigen is always a protein or contains protein and is made up of two parts, a protein component and another which may or may not be protein and is called a hapten. This latter may be one or more types of definitely known chemical substances particular to the specific antigen concerned and has certain known functions and powers. Any organism which is able to produce immunity in an animal contains certain haptens. These are incapable of producing immunity reactions in vivo. The protein component with which it is combined is the immune antibody stimulant. The response occurs in the blood stream. The antibody is always a globulin, a pseudoglobulin or euglobulin. Antigen antibody reaction is the surrounding of this hapten with the globulin in a definite way depending on the spatial molecular structure of the hapten and globulin. It is this special chemical characteristic of the hapten which can combine with the globulin which determines the specificity of the immunity. The same workers have carried this question of the antibodies still further—they have tried to determine what they mean by the phenomena of agglutination and precipitation. The first hint to the solution was found by Weil and later revised by Weil and Felix. They found that some flagellated organisms under certain conditions of growth lost their flagellae. They called these the "ohne hauch" (o), forms, i. e., without the flagellae. By carrying on in vitro and in vivo experiments with these organisms, they determined that the flagellum cells contained both hapten and the protein component. So in the presence of flagella they gave immune reaction; in the absence of flagellae they gave another kind of immune bodies. Then came the work of Arkwright who first described the change in growth forms of micro-organisms which turned out to be our present dissociation types. They investigated further on smooth and rough colonies and found that the smooth were the more virulent of the two. The original hapten had disappeared in the S-R change. Therefore, the antibody reactions were different. With that clue the question of the location in the organism of the flagellar and somatic antigens arose. The sum of their investigations on this question are as follows: that the whole question of antibody-antigen relationship resolves itself into the fact that haptens act specifically as antibodies because of their physical-chemical structure; that the combination with antibody occurs on some part of the organism. When it is on the flagellar hapten they precipitate because the antibody and hapten are in solution. When agglutination takes place it is because we are dealing not with substances in solution but with haptens still bound to the surface of the bacteria. When the antibody combines with surface haptens it sets up electrolytic changes in

the cell-membrane and we see then not the neutralization of antigens in solution but the precipitation of the entire organism. The explanation is the same when lysis occurs. As exemplified in the hemolysis of red cells the haptens are in the cells. These with their protein component produce antibodies. In this case there is also the normal complement in the blood stream which in the presence of the antigen-antibody combination is able to act on the red blood cells, changing their permeability to hemoglobin. Opsonins are explained on the same principle. The antibody reaction again influences the surface membranes of the organism and makes it in some way more susceptible to phagocytic action. Lysins, precipitins, agglutinins and opsonins are now placed on a chemical basis; they are end processes and have disappeared as distinct entities.

Dr. Robert A. Strong (Department of Pediatrics): Interest in the immunology and epidemiology of whooping cough may be said to have started with the discovery of the bacillus, which for many years was believed to be the specific etiologic factor, by the Belgian investigator, Bordet, in 1906. Shortly after this discovery, vaccines were made from pure cultures of this organism alone or in combination with the organisms comprising the flora of the upper respiratory tract. They all proved to be quite valueless as prophylactics or therapeutically after reasonable trial. Their use was continued, however, by a small group who wrote enthusiastically concerning them, but the very nature of the supporting evidence of their value, which was mentioned in these few contributions, left no other impression but that the writers were fundamentally uninformed on the immunology of pertussis or that they were intellectually dishonest. Interest did not wane, however, and in about 1932, Gardner and coworkers, supported by Toomey and others, emphasized the importance of the hemolytic and toxic or active type of the bacillus. This, in a large measure, initiated the development of the vaccines which are being used at the present time both for prophylaxis and treatment of whooping cough.

Any discussion of this subject, however, would be incomplete if mention was not made of the use of a *B. pertussis* vaccine as an immunizing substance, by Madsen during an epidemic in the Faroe Islands in 1929. Madsen reported that of 1,832 vaccinated children, 458 or 25 per cent did not contract whooping cough; of 446 non-vaccinated children eight or less than 2 per cent escaped infection. He considered these results favorable and attributed them to the use of young strains of *B. pertussis*, a total does of 22,000 million bacteria and the completion of vaccination shortly before the onset of the epidemic.

Just about the same time Sauer began working with the view of developing an effective vaccine for the prevention of whooping cough. Between 1928 and 1933, over 300 young, non-immune children were each given hypodermically a vaccine containing between 70 and 80 billion bacilli. Over 1600 injections were given. In no instance was a severe local or systemic reaction noted. The vaccine was prepared from five to seven strongly hemolytic, recently isolated strains of *B. pertussis* grown on Bordet medium, made with human blood. A fresh supply was made every few months. The forty-eight hour growth was scraped off and suspended in 0.5 per cent phenolized normal salt solution. When sterility and purity were insured (after a week in the refrigerator) by culture on three successive days and examination of stained smears, it was diluted with 0.5 per cent phenolized normal salt solution so that 1 c.c. approximated 10 billion bacilli. Syringes and needles were sterilized in the hot oven. A total of 7 to 8 c.c. was given to each child.

Sauer's vaccine is now widely distributed and the results which have been obtained with it in the prevention of whooping cough have been most encouraging. Sauer has repeatedly emphasized that he claims no value for his vaccine in the treatment of whooping cough. Several commercial laboratories have been licensed to make his vaccine from freshly isolated hemolytic strains which are sent to them each month. The total dosage after six months of age is 8 c.c. The vaccine is administered as follows: 1 c.c. is injected just under the skin in the deltoid region of each arm or preferably in the buttocks; one week later, 1.5 c.c. is injected in the biceps region of each arm; one week later, 1.5 c.c. is injected in the triceps region of each arm.

Because of the fact that 50 per cent of the deaths from pertussis occur in the first year of life, the best age for immunization is obviously between the seventh and tenth months. Reactions to the injections are chiefly local, although a transient rise in temperature may occur within from four to thirty-six hours after an injection. No reaction has been severe enough, however, to necessitate the postponement of the subsequent injection.

The second vaccine which has attracted attention since there has been a renewal of interest in pertussis vaccines, is that which has been prepared by Krueger of the University of California. He called attention to the role of what is spoken of as "denaturation reactions" in altering the antigenicity of bacteria during the physical and chemical manipulations incident to preparation of vaccines. Two preparations of Krueger's vaccine are available at the present time: one is known as the pertussis U. B. A. (undenatured bacterial antigens) and pertussis mixed U. B. A., which also contains the undenatured antigens of pneumococci, streptococci, H. influenzae, M. catarrhalis, and staphylo-

cocci. A mixed antigen is preferred by some physicians in their efforts to prevent and treat the disease with this vaccine, because invariably we have to deal with the upper respiratory bacterial flora in addition to the pertussis organism. As yet, neither of these vaccines has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The Council feels as others do that the progress made with the use of these vaccines has been encouraging, but they are waiting for more convincing proof. Sauer makes no claims that his vaccine has therapeutic value and the results so far obtained with his vaccine as a prophylactic are gratifying. On the other hand, claims are made for the Krueger vaccine in both the treatment and prevention of pertussis. As a preventive measure if compares favorably with Sauer's vaccine, but its value in treatment is unproved. Recently interest has been awakened in the virus theory of the etiology, and animal transmission studies are now in progress in Baltimore. We can only live in hope that we may soon obtain an effective means of combatting whooping cough. In the meantime, the use of the Sauer vaccine prophylactically should be continued.

J. T. NIX CLINIC

NEW ORLEANS

At a meeting held in July, Doctor Monte F. Meyer presented the following paper.

SOME INTERESTING PHASES OF THE RECENT INFLUENZA EPIDEMIC, WITH A CASE REPORT

The epidemic of influenza, which occurred during the early spring months, was the most severe since the epidemic during the World War. It was confined mostly to children. It was only due to our isolated method of living that the spread was not greater. However, in many cities and towns throughout the adjoining states, schools, theatres and even churches closed to prevent the epidemic from increasing.

One of the most noticeable effects was the attack on the upper respiratory tract. It affected the throat, sinuses and the ears. Pheumonias were not uncommon, but complications, such as empyema, were rare. In one private institution alone, Hotel Dieu, there were more mastoidectomies performed during this period than during the whole existence of the hospital. There were many complications of mastoid infections, among them, sinus thrombosis and meningitis. This is the first time that we have seen such violent ear infections in this community, and every case of acute otitis media was potentially a mastoid. While influenza organisms were not recovered from the middle ear or mastoid, the usual germs were pneumococcus or streptococcus. Blood cultures were frequently positive for streptococcus. The mortality was fortunately very low, despite the apparent intensity of the infection. I believe that the coming winter months will reveal many sinus conditions in children which owe their origin to this epidemic.

The following case report with autopsy findings will attest to the severity of the infection.

CASE REPORT

I was called in consultation to see a boy, R. M., aged 12, rather poorly developed, who gave a history of having an attack of influenza which began four weeks previous. He remained in bed one week without medical attention; apparently improved, and returned to school. After staying in school for three days, his fever recurred, he went back to bed and finally a physician was called. Two weeks later he developed a severe earache (right ear) with a spontaneous rupture of the eardrum, and drainage from the middle ear ensued. The pain subsided for twenty-four hours, then recurred with chilly sensation and the temperature ranging from 100° to 104°. The mastoid became tender and some vomiting occurred.

At this time, I found the right ear draining profusely; marked tenderness over the mastoid antrum on gentle pressure; no edema of the skin or thickened periosteum (mastoid). There was also pain along the right sternocleidomastoid muscle (over the juglar vein). No enlarged glands could be palpated. The neck was painful to motion but no rigidity was present.

A tentative diagnosis of lateral sinus thrombosis complicating acute mastoiditis was made and the child sent to the hospital via ambulance for operation. Roentgen ray showed marked destruction of cells but the sinus plate intact (Fortier & Gately).

Operative record—April 19, 1936: Acute mastoiditis, right; right mastoidectomy; Drs. M. F. Meyer and Val Fuchs.

Antrum was found full of pus, tip cells and peri-sinus cells. The bone over the lateral sinus was found hard and it was decided not to open it as it seemed intact. A rubber tube drain was inserted.

Several days after this operation the child's condition had not improved as would be desired. Consultants were called and diagnosis of probable involvement of the lateral sinus and internal jugular vein was made. The patient was taken to the operating room and the lateral sinus opened.

Operative Record—April 25, 1936: Lateral sinus thrombosis, right side; opening of lateral sinus: resection of internal jugular vein: indirect blood transfusion; Dr. James T. Nix.

A three inch incision was made along the anterior border of the sternocleidomastoid musle. As soon as the deeper structures were met there was evidence of a rather acute inflammation. Several glands were found which were apparently normal. It was difficult to locate the internal jugular vein

because the vein was collapsed. It was entirely free from blood. It was resected up to the jugular bulb and down as far as the subclavian. In the upper portion of the vein pure pus was found and thrombi below and above. No free bleeding was found as far down as the probe could be passed into the subclavian. Upon attempting to resect the vein high up the vein was so necrossed that it actually pulled off and the upper end could not be located. An iodoform pack was placed high up in the wound to prevent any bleeding from the torn end of the vein. The muscles were sutured with No. 0 chromic catgut, Michel clips for the skin.

Right Mastoidectomy: Drs. M. F. Meyer, Val Fuchs and Geo. Taquino.

The mastoid was reopened. The lateral sinus was found covered with hard bone which had to be chiseled away. A small iodoform pack was placed below and above between the lateral sinus and the bony covering. The lateral sinus was then incised with a Graefe knife and no free bleeding encountered. With curet, clots were scooped out from as low as the curet would reach to the jugular bulb and as high up as the sagittal sinus. When the upper pack was slightly moved some free bleeding ensued. The pack was replaced to prevent further bleeding and to obliterate the lateral sinus. At the upper junction of the lateral sinus, pus was encountered in the region of the dura, probably a small subdural abscess. Iodoform pack placed in wound and no attempt was made to close the mastoid incision.

Progress: Three blood transfusions were given to patient. His temperature ranged from 97° to 106°. Chilly sensations persisted from the time of admission to the hospital until death. On April 26, 1936, the patient developed a slight cough, which grew steadily worse. Roentgen ray on May 4 showed a thickened interlobar pleura, right side; irregular areas of increased densities throughout the lower right lobe; irregular area of increased density, left base, due to pneumonia. The patient began coughing bloody, purulent matter. Roentgenogram on May 12 showed findings to be those of pneumonia with evidence of lung abscess. On May 18 roentgen ray showed pneumonia surrounding lung abscess; no evidence of free fluid in the right pleural cavity. On May 20 a roentgen ray plate was taken which showed diffuse pneumonia in the mesial two-thirds of practically the entire left lung. On June 1 roentgen ray showed an extensive pneumonia of the left lung; chest findings on the right side were unchanged. No attempt was made to drain the lung abscesses because of the cough which persisted and grew steadily worse. It was feared the patient could not stand the shock. The child began to become stuporous on June 2, voiding involuntarily. The condition progressed from bad to worse and the patient expired on June 3 at 4:15 a. m. For a period of two weeks after the second operation the condition improved and it was thought the child had a fairly good chance to recover, but when the pneumonia and lung abscess developed, the patient grew steadily worse until his demise.

A complete autopsy was performed but because of lack of space only the salient points are given. Both pleural cavities were filled with pus. A large abscess, the size of a golf ball, was found at the base of the right lung surrounded by smaller abscesses. On the left side about 200 c.c. of a thick greenish colored pus was found in a pocket immediately behind and to the left side of the pericardial cavity and heart. The pulmonary artery was opened in situ and no ante mortem clot was found, but the superior vena cava was found thrombosed from the right auricle up to its bifurcation in the neck where the thrombi extended into the smaller vessels. The calvarium was opened and the brain removed. On removing the brain a large abscess in the temporosphenoidal lobe on the right side ruptured and approximately 70 c.c. of pus was discharged from its cavity. On tracing this abscess it was found that it had previously ruptured in the right lateral ventricle and from this point had penetrated into all other ventricles, where pus was found mixed with the spinal fluid. The basal ganglia were also covered with a purulent fibrinous exudate. A probe passing from the mastoid incision through the necrotic bone struck upon the spot where the abscess was found. The lateral sinus and the deeper veins of the brain were all thrombosed. The thrombus in the sinus was well organized from the point where it had been severed, downward for several centimeters. The other sinuses were carefully examined but none were found thrombosed.

Final Diagnosis: Acute mastoiditis; septic bronchopneumonia; pleurisy; abscess of the right lung and localized empyema of the left pleural cavity; abscess of the brain; toxic hepatitis, nephritis, and splenitis.

SUMMARY

1. The bone over the lateral sinus at the time of the primary operation was hard and the lateral sinus not opened because it seemed intact and the chilly sensation thought due to other causes.

2. No positive blood cultures were found although twenty cultures were taken.

3. Despite the amount of pus found in the chest and brain, clinical signs and symptoms did not bear this out.

4. The roentgen rays were unable to give definite signs of the amount of pus in the chest.

5. The severity of the infection, which probably started in the nasopharynx, was carried into the mastoid and jugular vein at the same time.

I wish to express my thanks to Doctors Nix, Signorelli, Taquino and Fuchs for their kind assistance and consulation.

OSCAR ALLEN TUMOR CLINIC
CHARITY HOSPITAL
New Orleans

The scientific meeting of July was called by Doctor James T. Nix, Director. The essayist was Dr. Blaise P. Salatich, who presented the following paper:

FREQUENCY OF ORAL CANCERS

Cancers of the oral cavity and corresponding structures have been for a long time quite a problem for both the dental and medical clinician. For thousands of years, cancer has taken its toll of human lives without much consideration of race, sex or class.

Although great strides and advancements have been made in the field of cancer therapy, the oral and soft tissue neoplasms still claim a very large number of victims, not only by their extensive destruction in growth and development but even quite frequently terminating the life of their host.

Only one who actually comes in contact with the large number and varying types of mouth cancers can readily observe the terrible conditions that some of these cases present. Few people realize the frequency of neoplasms found in the oral cavity and surrounding tissues and structures. They often overlook the close relationship between sex, habits, chronic inflammation and cancer itself.

As a distinct and separate entity, the mouth ranks amongst the leaders for occurrence of malignant tumors, having been shown by statistics of the United States Cancer Bureau, to be surpassed in number only by the stomach, female genital organs and rectum. Cancers of the mouth occur five times more frequent in men than in women, but these proportions pertain to the lips, tongue and floor of the mouth particularly.

Malignant growths of the oral cavity are credited with a higher mortality rate than that of skin cancers, although these figures vary in different parts of the civilized world. In parts of China it has been found, by actual survey, that mouth cancers stand first on the list of malignant tumors. These varying conditions present in different parts of the globe can be explained in a number of ways, but foremost in importance is the fact that in the areas of a high mortality rate and frequency of occurrence, we find a deplorable and often complete lack of oral hygiene. In various countries having a high frequency rate, on examining the cases that present themselves, a filthy germ laden mouth is observed, also being accompanied by badly decayed, sharp edged roots and teeth. These existing factors are the prime and predominating causes of almost every oral tumor.

These people living in countries that are lacking in educational and health facilities, together with a state of extreme poverty and want, can offer an excuse for their lack of coordination in attempting to treat these existing malignant conditions, but the population of the United States in general is very often to blame for the lack of interest and determination in trying to overcome this pitiful and too often fatal condition.

In a large majority of cases the layman or patient is responsible and to blame for the disastrous prognosis of his or her affliction, by the unnecessary waiting or postponement of a visit to a proper clinician, and only doing so when the tumor has become so large and involved that it actually interferes with and prevents normal functions of the mouth and parts.

It is astonishing to observe the large number of cases that present themselves to the dental and medical clinician only after the neoplasms have been allowed to grow and include a great portion of the surrounding soft tissues, and have also decreased and reduced their chances of a favaroble prognosis by allowing metastasis to occur. If these patients had consulted a clinician or cancer clinic when the growth first made its appearance, quick and prompt treatment with the various proved methods of cancer therapy at hand, their chances of complete recovery would have been somewhat promising, but instead they are almost doomed due to their own stubborn negligence. Fear of the truth about their condition very often will keep a patient having an oral tumor from applying for diagnosis and treatment. This situation is found not only in the mouth cases but in tumors throughout the human body. These types of patients who try to fool themselves into thinking that the mass or sore present is not very serious and will probably disappear of its own accord without any treatment, reminds one of an ostrich attempting to hide himself from view by burying his head in the sand. He is only fooling himself and does not fully realize the fact.

The layman does not realize that cancers of the mouth do not just occur, but very often can be connected with some type of irritating and stimulating factors. Loose teeth allowed to remain in the mouth for a long period of time have been found to be responsible for a cancerous growth surrounding the tooth socket by its constant irritating and traumatizing effect. Loose and ill fitting bridge work and dentures also cause a very large number of epitheliomas of the delicate mucous membrane found in the oral cavity.

Only slight irritation over quite a long period of time will very often result in the formation of a malignancy of the part involved. Chronic inflammation and oral sepsis with poor hygiene also are responsible for their share in mouth tumors. These tumors caused by the various antagonizing factors are very often benign in their incipiency and remain so, for a long period of time, but as the patient advances in years and the irritating

condition is allowed to remain, together with their entering into a somewhat susceptible stage, this supposedly harmless mass then begins to grow quite fast and continuously and attains a very large size causing functional embarrassment and pain before medical advice will be sought. The removal of these small masses, together with the relief of the causative factor, would very often afford a favorable prognosis, but with its development into a lethal malignant growth having no consideration and quite determined in its destruction, the outcome is very often disappointing and discouraging.

A very frequent precancerous lesion found in the mouth is a condition termed leukoplakia buccalis. This condition is characterized by whitish-grey elevations or patches found generally on the inside of the cheek usually along the occlusal line of the teeth. These plaques may be treated with various strengths of radium and deep roentgen ray therapy, but the most important consideration is the removal of the traumatizing factor generally present and also the close observation by the attending clinician from time to time. These leukoplakia patches are found most frequently in men and these being found in the presence of heavy and excessive smokers accompanied with poor oral hygiene.

Syphilis also is very often associated with malignant lesions found in the mouth and surrounding parts, Fox having found that sixty-five per cent of these cases had syphilis. Very often a lesion of the tongue or inside of the cheek is treated for syphilis, but is actually an ulcerated type of epithelioma that has become, through development, a case of syphilitic leukoplakia.

The patient alone is not to blame in some cases of negligence in the unnecessary development of an oral malignancy. Many dental and medical clinicians do not fully realize that all these large ulcerated and proliferating growths and masses started from a small lump or lesion and that as an efficent clinician, he must be on a constant lookout for the presence of these very early tumors, and by either their complete removal or microscopic examination of a section can better treat and prevent the neoplasms from obtaining a firm foothold and probably saving the life of his patient. A biopsy is the only definite fool proof method of determining the type of growth present, whether benign or malignant and if so its grading, and a better determination of a successful treatment.

Space does not allow me to cover fully the subject of oral concer frequency but only permits the touching upon the important and surprising facts of these conditions.

CONCLUSION

Although the cancer clinician and research workers are moving forward at a constant and gratifying rate, the subject of oral malignancy will always be a somewhat discouraging one if the layman and general public are not sufficiently educated and rendered cancer-minded so as to enable them, at the first signs of a persistent mass or sore that does not respond to usual treatment, to apply to their local physician, dentist, tumor clinic or hospital for examination, diagnosis and treatment and thereby give the clinician an advantage over such a serious destructive death-causing condition as cancer.

HOTEL DIEU

The regular monthly meeting of the Hotel Dieu Staff was held on Monday, June 15, 1936 at 8 p. m. in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, with the Secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

1. Anthrax (Case Report), by Dr. J. A. LaNasa. Discussed by Drs. Gorman, Bacon, Jamison, Couret, and Walet.

2. Modern Trend in Obstetrical Anesthesia and Analgesia with Special Reference to the Use of Epidural Analgesia, by Dr. P. Graffagnino. Discussed by Drs. Danna, Jamison, Walet, and Levy.

3. Some Interesting Developments in the Management of a Case of Carcinoma of the Rectum, by Dr. J. A. Danna. Discussed by Drs. Gorman, Jamison, and Graffagnino.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session. The meeting was then adjourned.

NORTH LOUISIANA SANITARIUM

The Staff meeting was called to order on June 26, 1936, by the President, with 23 members present. After disposal of routine business, attention was turned to the scientific program.

Dr. Kerlin, in a few opening remarks on Dr. Heard's case report, mentioned that he was called to see an 11 year old boy who was running fever. On entering the room he was struck with the tumultuous action of the patient's heart and pulse and on further examination observed a flushed face and exophthalmos and suggested a diagnosis of exophthalmic goiter, requesting further study. A basal metabolic rate at that time was plus 52. Dr. Kerlin advised surgery as the best procedure for a cure. Dr. Heard considered the case as a typical exophthalmic goiter. The basal metabolic rate was rechecked on two occasions, being plus 12 and plus 48 respectively. The patient was put on Lugol's solution for three weeks, at the end of which time a double polar ligation was done because the pulse rate remained elevated. The patient had a marked reaction following the ligation. Two weeks later, the patient was again put on Lugol's solution and in about two weeks, when the

patient was well under hypnotics the "thyroid was stolen." Postoperative recovery was uneventful and up to date the patient is doing fine. The case was discussed by Drs. Wolfe and Cassity.

Dr. Herold showed a case of chronic glomerulonephritis with a marked anasarca that became progressively worse under the usual nephritic regime of low protein, salt-free diet. When placed on a high protein diet the patient began to improve rapidly and became edema free. The case was discussed by Dr. Gowen.

H. M. Trifon, M. D., Sec.

TRI-STATE HOSPITAL

The regular monthly meeting of the Staff was called to order on June 25, 1936, by Dr. J. E. Knighton, Sr. Routine business was transacted, and the report of the examiner from the Committee on Education and Hospitals of the A. M. A. was read. It was pointed out that only an increase in the autopsy percentage seemed necessary for complete approval.

A very interesting case report was presented by Dr. W. B. Allums. The patient, a white male aged 58 years, complained of urinary frequency and of a tumor mass in the lower left abdominal quadrant. The history revealed right nephrectomy 18 years ago, but nothing else of note. Examination revealed good nutrition, and no abnormal findings except the tumor mass above mentioned. This was not large, but easily palpable. Proctoscopic examination revealed an obstructive lesion at the recto-sigmoid junction, verified by barium enema. There was only partial obstruction to downward peristalsis. Cystogram showed a semi-lunar pressure defect in the upper left portion of the bladder, and several large stones were present in the left kidney.

A diagnosis of malignancy at the recto-sigmoid junction was tentatively made, and operation advised. Ten days later the patient returned to the Hospital for surgery, and, at this time the tumor mass was found markedly reduced in size. Roentgen ray check up was reported favorably, and operation deferred. Diagnosis was altered to diverticulitis, with inflammatory mass causing partial obstruction. Doctors Knighton, Sr. and Jones aided in the presentation of the case, and it was discussed by various members of the staff.

After consideration of the statistical report the staff recessed until September meeting.

J. E. Knighton, Jr., M. D., Acting Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of August practically all of the hospital staff meetings will be adjourned for the summer, consequently no calendars will be published.

At the Scientific Meetings of July 13, a paper was presented by Dr. Neal Owens entitled Treatment of Varicose Ulcers of the Lower Extremity. This paper was discussed by Drs. J. Ross Veal and H. R. Mahorner. The other paper on the program was presented by Dr. George W. Robinson entitled The Local Use of Quinine in Ophthalmology. This paper was discussed by Dr. Charles A. Bahn.

At this meeting the reports of the Special and Standing Committees were read.

MERCY HOSPITAL

The June meeting presented a Symposium on Appendicitis. This was participated in by Dr. Phil. C. DeVerges who discussed appendicitis in the child; Dr. Max Green, the urologic aspects of appendicitis; Dr. Edwin L. Zander, appendicitis in pregnancy; Dr. L. J. Hanckes, surgical aspects, and Dr. George H. Hauser, the pathologic aspects of appendicitis.

The Woman's Auxiliary of the Orleans Parish Medical Society is cooperating with the Tuberculosis and Public Health Association of New Orleans is planning a health education campaign in schools of New Orleans the coming fall. Mrs. Francis E. LeJeune is Chairman and Mrs. H. B. Gessner is Vice-Chairman of this cooperating committee.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Dr. Thomas B. Sellers was selected first President of the New Orleans Graduate Medical Assembly; Dr. Lucien A. LeDoux, Vice-President; Dr. Wm. H. Gillentine, Secretary; Dr. Francis E. LeJeune, Treasurer and Dr. Frederick L. Fenno, Director of Clinics. The Executive Committee consists of Drs. Philips J. Carter, Amedee Granger, Urban Maes, John H. Musser and Alton Ochsner. The present plans are to hold this assembly March 17-20, 1937.

PROMOTIONS AT CHARITY HOSPITAL

Dr. Arthur Vidrine, Superintendent of Charity Hospital, announces the following promotions: Drs. J. G. Saulb and L. J. Dubos from Visiting to Senior Visiting Physicians; Dr. H. B. Gessner from Senior Visiting Surgeon to Consultant: Drs. O. C. Gassergrain and D. J. Murphy from visiting Surgeon to Senior Visiting Surgeon; Drs. David Adiger, P. L. Danna, A. N. Owens and C. J. Tardo from Assistant Visiting Surgeons to Visiting Surgeons; Dr. Hillard E. Miller from Visiting Surgeon to Senior Visiting Surgeon; Dr. Felix A. Planche,

Senior House Surgeon, was appointed Visiting Surgeon.

Drs. D. J. Graubarth and Neal Owens spoke at the meeting of the Harrison-Stone-Hancock County Medical Society at Biloxi, July 1.

Dr. Robert A. Strong was a guest speaker at the Mississippi State Pediatric Society, Jackson, July 2.

Drs. I. M. Gage and Chaille Jamison spoke to the staff of the Field Memorial Hospital, Centerville, Mississippi, July 9.

Dr. Alton Ochsner addressed the Chattanooga Surgeons Club and the Chattanooga and Hamilton County Medical Society, Chattanooga, Tennessee, July 14-15.

Dr. J. H. Musser was the guest speaker at the Lehigh Valley Medical Society meeting, Pocono Manor, Pennsylvania, July 15.

LOUISIANA STATE MEDICAL SOCIETY NEWS

OFFICERS AND COMMITTEES OF STATE SOCIETY

In the June issue of the Journal, editorial comment was made concerning the new officers that had been elected at the meeting of the State Medical Society in April. For a matter of record a complete list of officers, together with their addresses, is appended herewith.

President Elect: Dr. C. M. Horton, Franklin.
1st Vice President: Dr. C. Young, Covington.
2nd Vice President: Dr. A. W. Martin, Bogalusa.
3rd Vice President: Dr. Guy Shaw, Loreauville.
Secretary-Treasurer: Dr. P. T. Talbot, New Orleans.
Chairman of the House of Delegates: Dr. King Rand, Alexandria.
Vice Chairman of the House of Delegates: Dr. Val Fuchs, New Orleans.
Councilors for a term of two years:
First District: Dr. H. E. Bernadas, New Orleans.
Second District: Dr. D. N. Silverman, New Orleans.
Fourth District: Dr. M. D. Hargrove, Shreveport.
Fifth District: Dr. J. B. Vaughan, Monroe.
Councilor for a term of one year:
Sixth District: Dr. R. G. McMahon, Baton Rouge.
Committees:
Public Policy and Legislation:
Dr. Glenn J. Smith, Amite.
Dr. C. Grenes Cole, New Orleans.
Dr. P. T. Talbot, New Orleans.
Dr. H. W. Kostmayer, New Orleans.
Dr. Foster M. Johns, New Orleans.
Scientific Work:
Dr. P. T. Talbot, New Orleans.
Dr. A. E. Fossier, New Orleans.
Dr. A. A. Herold, Shreveport.
Medical Defense:
Dr. J. C. Willis, Shreveport. (For term of three years).
Hospitals:
Dr. J. L. Scales, Shreveport.
Dr. O. P. Daly, Lafayette.
Dr. J. E. Walsworth, Monroe.
Dr. A. J. Comeaux, Lafayette.
Health and Public Instruction:
Dr. W. H. Seeman, New Orleans.
Dr. F. R. Gomila, New Orleans.
Dr. M. H. Foster, Alexandria.
Dr. J. Q. Graves, Monroe.
Dr. J. K. Griffith, Slidell.
Journal:
Dr. John A. Lanford, New Orleans. (For three year term to succeed himself).

Delegate to American Medical Association: Dr. W. H. Seeman, New Orleans.

Alternate to American Medical Association: Dr. A. A. Herold, Shreveport.

DR. GRAVES APPOINTED CHAIRMAN

Dr. J. Q. Graves of Monroe, Louisiana, has been appointed Chairman of the General Arrangements Committee for the coming meeting of the Louisiana State Medical Society in Monroe, April 26-28, 1937.

TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society of Northeast Louisiana had its regular monthly meeting at Lake Providence Tuesday, July 7, 1936.

After a delicious chicken dinner the following program was presented:

1. Surgical Cases of Diabetes, Dr. E. Hirsch, Monroe, La., discussed by Dr. M. W. Hunter, Monroe, La.

2. Lymphopathia Venerum, Dr. J. P. Davis, Lake Providence, La., discussed by Dr. W. H. Hamley, Lake Providence, La.

DR. LEJEUNE HONORED

It is with a great deal of pleasure that we record the fact that Dr. F. E. LeJeune, Professor of Otolaryngology in the Graduate School of Medicine, Tulane University of Louisiana, has been awarded the Casselberry prize for the outstanding piece of work in otolaryngology in the last three years. This award was given Dr. LeJeune because of the magnificent moving picture film of

normal and pathologic vocal cords that he is responsible for making.

AMERICAN ACADEMY OF PERIODONTOLOGY

The twenty-third annual meeting of this organization was held in San Francisco July 9-11. The Society was honored by having Dr. Haidee Weeks of New Orleans as president.

U. S. PUBLIC HEALTH SERVICE

Acting Assistant Surgeon C. A. Faber has been relieved from duty, U. S. Marine Hospital New Orleans, and assigned to the U. S. Quarantine Station, Fort Monroe, Virginia.

Passed Assistant Surgeon Joseph G. Pasternack has been ordered to New Orleans for assignment to duty.

Medical interne Joseph H. Goldberger has been relieved from duty at the U. S. Marine Hospital, New Orleans, and ordered to the U. S. Southern Reformatory, El Reno, Oklahoma, for duty.

Senior Surgeon C. L. Williams has been relieved from duty at the New Orleans Quarantine Station and ordered to Washington for duty.

Acting Assistant Surgeon H. M. Heitsch has been ordered from the U. S. Quarantine Station, New Orleans, to Miami, Florida, for duty.

NEWS ITEMS

Prof. Charles J. Bloom, of the faculty of the Graduate School of Medicine of The Tulane University of Louisiana, conducted a Summer Round-Up on June 19, 1936, at Bay St. Louis, Miss., under the auspices of the Parent-Teachers Association and other Associations of Hancock County.

Prof. Bloom will conduct instruction at the Southern Pediatric Seminar which will be held at Saluda, N. C., on July 27-29, 1936.

Dr. A. Scott Hamilton, specializing in diseases and injuries of the bones and joints, is now associated with the Vaughan-Wright-Bendel Clinic in Monroe, Louisiana.

The First International Conference of Fever Therapy, originally planned for the end of September 1936, had to be postponed until March 30, 1937. This meeting will take place at the College of Physicians and Surgeons, Columbia University, New York City. Information concerning the conference may be obtained from the general secretary, Dr. William Bierman, 471 Park Avenue, New York City.

The fifteenth annual clinical and scientific session of the American Congress of Physical Therapy will be held at the Waldorf-Astoria Hotel, September 7-11. Physicians, their technical assistants, and nurses working in institutional departments of physical therapy are urged to attend this important meeting.

The American Board of Ophthalmology announces the removal of its executive offices to Room 1002 Beaumont Building, 3720 Washington Boulevard, St. Louis, Missouri, according to an announcement from Dr. John Green, Secretary-Treasurer. The next examination is to be held in New York City September 26.

The Congress of the Association of Photographic and Cinematographic Documentation of the Sciences will be held October 9-15 in the Musee Pedagogique de l'Etat, Paris, France.

The National Medical Council on Birth Control was organized in June, 1936, for the following purposes:

1. To control and supervise all medical policies of the American Birth Control League.
2. To initiate, encourage, and execute appropriate scientific research in the medical aspects of birth control.

The Council consists of a distinguished group of obstetricians, gynecologists, psychiatrists, and others interested in this important subject of birth control.

RESOLUTION ON HEALTH PROBLEMS

The following resolution was adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, June, 1936.

It was moved by Bauer, seconded by Leland:

Whereas, At the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Major Joel I. Connolly, of the Chicago Board of Health, relating to possible health hazards in apparently modern plumbing installations in public buildings, and

Whereas, It was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and

Whereas, The probability exists that such apparently modern, safe and sanitary plumbing installations may exist in numerous school building in the United States, and

Whereas, The existence of such apparently safe, modern and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

Resolved, By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this Committee apprehends the possibility of danger to the health of school children from apparently safe, modern and sanitary plumbing installations in school buildings, and be it further

Resolved, That the said Joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

Resolved, That these resolutions be offered for publication to all journals dealing with public health, health education and general education.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending June 13 there were 172 deaths in the city of New Orleans, divided 107 white and 65 colored. The death rate for the group as a whole was 18.7, for the white 16.4 and for the colored race 24.4. The infant mortality rate this week was 87, divided equally between the two races. For the succeeding week ending June 20, there was some increase in the total number of deaths, there being 183 for this week, with a death rate of 19.9. Of these deaths 100 occurred in the white population with a rate of 15.3 and 83 in the negro with a death rate of 31.1. The infant mortality this week was 110, due largely to the very high negro rate of 170. There was a sharp drop in the number of deaths in the week ending June 27 as contrasted with the previous two weeks, there being only 157 deaths listed with a rate of 17.1; 94 of the deaths were white people with a rate in this race of 14.4 as contrasted with a death rate of 23.6 amongst negroes, 63 of whom died in this week. The infant mortality for colored children was still high, being 141, giving a rate for the two races combined of 110. For the week ending July 4 the death rate of the city as a whole was 18.4 as result of 169 deaths, of which 101 were in the white race with a rate of 15.4, and 68 in the negro with a rate of 25.5. The infant mortality rate this week was only 70, well below the usual average. There was a drop of some 20 deaths in the week ending July 11, largely because there were only 81 white deaths with a rate of 12.4 while the negro deaths were exactly the same as the previous week; rate for the two groups was 16.2. The infant mortality rate was 93.

INFECTIONS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has sent out the following weekly morbidity reports which are summarized here briefly. For the week ending June 20, the following diseases were reported in double figures: 69 cases of pulmonary tuberculosis, 59 of malaria, 45 of whooping cough, 43 of pneumonia, 25 of gonorrhea, 24 of cancer, 19 of syphilis, 16 of diphtheria and 15 of typhoid fever. Five of the cases of typhoid fever were reported from Caddo Parish; no other Parish had more than one case, except for West Carroll which had two. A case of poliomyelitis was reported from Concordia, a case of smallpox from East Baton Rouge and one of undulant fever from New Orleans. For the next week, ending June 27, there was a sharp increase in the cases of pneumonia, 77 being reported this week as contrasted with five year average of 34.6. There were reported also 38 cases of malaria, 26 of pulmonary tuberculosis, 25 of syphilis, 22 of cancer, 20 of whooping cough, 18 of typhoid fever, 14 of influenza and 12 of gonorrhea. For this week five cases of typhoid fever originated in Tensas Parish, two in Caddo Parish and the remainder were scattered throughout the state. Of the unusual diseases, a case of poliomyelitis originated in Assumption Parish. Caddo and Orleans each reported a case of epidemic cerebrospinal meningitis, while two cases of tularemia came, one from Sabine and the other from Winn Parish. For the week ending July 4 there were tabulated 59 cases of malaria, 52 of pulmonary tuberculosis, 44 of whooping cough, 40 of pneumonia, 21 each of syphilis and cancer, 20 of typhoid fever, 16 of gonorrhea and 11 of measles. For the first time in a long while a case of dengue fever was reported, from East Carroll Parish. A case of undulant fever was reported from Caddo. Of the typhoid fever cases five came from Natchitoches Parish, four from Madison, three from Caddo, three from Evangeline and the rest from scattered Parishes.

For the week ending July 18, the twenty-ninth week of the year, malaria lead all other reportable diseases with 78 cases listed followed by pulmonary tuberculosis with 76, a rather pronounced increase in the incidence of both these two diseases and well above the five year average. Other diseases listed in double figures include: 64 cases of gonorrhea, 50 of syphilis, 47 of pneumonia, 33 of whooping cough, 32 of cancer, 25 of typhoid fever and 18 of influenza. Not more than three cases of typhoid fever came from any one Parish, in this instance Ascension, the remainding cases were scattered throughout the state. There was one case of poliomyelitis which was reported from Rapides Parish.

WOMAN'S AUXILIARY
Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.
President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President—Mrs. F. G. Ellis, Shreveport.
Second Vice-President—Mrs. T. H. Watkins, Lake Charles.
Third Vice-President—Mrs. E. B. Middleton, Homer.
Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.
Recording Secretary—Mrs. C. Grenes Cole, New Orleans.
Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.
Treasurer—Mrs. Courtland P. Gray, Monroe.
Parliamentarian—Mrs. R. T. Lucas, Shreveport.

TO MEMBERS OF THE WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The success of the meeting of the Woman's Auxiliary to the Louisiana State Medical Society at Lake Charles, was most pronounced. In the pleasant aftermaths, we should like to say, through the columns of the New Orleans Medical and Surgical Journal, we realize that it was due to the loyal support of the members and to the untiring efforts of their excellent committees in making the guests happy and comfortable, in the executive assemblies besides the delightful outside social contacts.

The week following our state convention several of the officers of the Woman's Auxiliary to the Louisiana State Medical Society accepted the special invitation of the Woman's Auxiliary to the Mississippi State Medical Society to attend their convention being held at Greenville, Mississippi. This proved most interesting. Different angles of a convention and new points of view were enjoyed. A high light of the occasion was the address by Dr. Fishbein, as well as the personal association with Mrs. Bonar White whose deep interest in auxiliary work was very evident. One of her strong points was: "Why are you an auxiliary member?" Solely because your husband is in good standing with his parish society!

We should not wait to be urged to join the auxiliary. It is to the common interest of all doctors' wives, approved and endorsed by the medical societies with a strong board supporting us, to unite in this common cause.

Quoting from a physician of national repute, "When the wives and daughters of physicians become acquainted in their auxiliary meetings and form lasting friendships, it helps greatly toward bringing the physicians into closer relationship."

Dr. Seale Harris said, "The Woman's Auxiliary has arrived—it has complete recognition of the Medical Association."

Quoting from Mrs. Robert W. Tomlinson, "To those women who are not members of the auxiliary, I commend more highly than anything else, the friendships gained through its members and the opportunity to be of service to the highest of professions."

May I urge that each Parish Auxiliary cooperate with our splendid chairman of "Press and Publicity", Mrs. Feldner, by reporting activities of meetings, or incidents or articles of interest, especially pertaining to public health education? Publicity makes news. It is essential in promoting any work that is to be placed before the public and should not be neglected by any auxiliary.

With entertainment being the key-note, when we renew our regular monthly meetings in October, and with each member doing her "bit", we feel assured of new organizations, keen interest and a still closer comradship.

Mrs. James Byron Vaughan,
President.

OUACHITA PARISH

It is the custom of this auxiliary to entertain the graduating class of nurses each year in June in place of the regular monthly meeting and luncheon. One of the greatest pleasures summer has to offer as a brief respite from the heat, is boating on the river after sundown. Realizing the pleasure afforded from such an outing, members of the Woman's Auxiliary to the Ouachita Parish Medical Association arranged a party on board the "Brown Kraft," complimentary to the season's graduate nurses of the St. Francis Sanitarium. Arranging the details of this enjoyable affair and acting as hostesses, assisted by auxiliary members, were Mesdames R. W. O'Donnel, F. C. Bennett, A. D. Tisdale, E. R. Yancey and J. I. Graves. Supper was served on deck to the Misses Bernice Larson, Ruth Cagle, E. Hargrove, Audrey Mae Smith, Gladys Austin, Blanche Gaddis, Fay Wilson, Lois Downes, Ada Humphries, Thera Morse and Mamie Busby.

The auxiliary members present on this occasion were Mesdames J. B. Vaughan, J. P. Brown, C. P. Gray, R. W. O'Donnel, J. I. Graves, A. B. Gregory, D. T. Milam, Pankey, C. U. Johnson, W. L. Bendel, D. M. Moore, C. H. Hill and A. L. Peters.

The Ouachita auxiliary is inactive during the summer months but we hope all the other auxiliary members will enjoy a cool and pleasurable vacation.

Mrs. W. L. Bendel,
Publicity Chairman.

Supplementary to Mrs. Levin's delightful report on the Kansas City Convention, listed below are the officers of the National organization for the ensuing year:

President—Mrs. Robert E. Fitzgerald, Wisconsin.
President-elect—Mrs. Augustus Kech, Pennsylvania.
First Vice-President—Mrs. David S. Long, Missouri.
Second Vice-President—Mrs. Prentiss Willson, Washington, D. C.

Third Vice-President—Mrs. Philip S. Doane, California.

Fourth Vice-President—Mrs. Martin Nordland, Minnesota.

Recording Secretary—Mrs. C. C. Tomlinson, Nebraska.

Treasurer—Mrs. Eben J. Carey, Wisconsin.

Directors—Mrs. Herbert L. Mantz, Missouri; Mrs. Rollo K. Packard, Illinois; Mrs. Fletcher J. Wright, Virginia.

Dear readers, it is more than worth you time during the lazy, leisure hours of summer to read the messages of the out going and incoming presidents. of the A. M. A. Auxiliary contained in the May issue of the American Medical Association Bulletin. So much inspiration, interest and auxiliary spirit prevail in these paragraphs that one can hardly have read them and not feel proud to be a member of this body of women who are doing so much toward the welfare of humanity. If you are not in the habit of reading the Bulletin, start now and let the habit grow on you so that you will look forward with expectancy to each publication.

Mrs. George D. Feldner, Chairman,
Press and Publicity.

BOOK REVIEWS

Evans' Recent Advances in Physiology, 5th ed., rev. by W. H. Newton, M. D., M. Cc. (Manch.) Illus. pp. 500. Philadelphia, P. Blakiston's Son & Co., Inc., 1936.

"The advance of theoretical physiology is intimately related to the advance of medicine because it is the only basis on which scientific as distinct from empirical medicine can possibly rest . . . . . Whether or rather when, the conquest of medicine by physiology eventuates, will depend as much on the perspicuity of pathologists and physicians in applying physiological theory as on the diligence and intelligence of physiologists in developing it." Frankly, there is not much in this volume that will appeal directly to practitioners of medicine.

Chapter 1 deals with the Coronary Circulation and its Regulation. Recent work, including detailed descriptions of methods, is dealt with in detail. Two deficiencies of the discussion are an insufficient review of the other means by which the heart muscle may be fed when the coronary circulation is occluded and the recent work of Kuntz on the nervous control of the coronary circulation in revived human hearts. Chapter 3, on the Carotid Sinus and the part played by it in the regulation of respiration and circulation, suffers from the defect that much important recent work has appeared since this volume went to press.

Carbonic Anhydrase is discussed in Chapter 4. This is the enzyme, almost exclusively in the red blood corpuscles, which accelerates the rate of the equilibration of the bicarbonate of blood with carbon dioxide. New work on the Carriage of Carbon Dioxide by the Blood is given in Chapter 5. This is particularly concerned with carbaminobound, "x-bound" and "y-bound" CO2. The total CO2 combined otherwise than as bicarbonate is called "x-bound" CO2, this minus carbaminobound CO2 may leave a residue unaccounted for which is "y-bound" CO2.

Chapter 6 deals with the Oxygen Supply of the Fetus, the recent work on which is particularly associated with the name of Joseph Barcroft of Cambridge, England. The hemoglobin of the fetus and the hemoglobin of the adult are not identical, and there are at least two varieties.

Chapter 7 on The Sex Hormones is not one of the best chapters in the book, the subject having been much more adequately presented elsewhere. Chapter 8 deals with Conduction and Excitation in Nerve; Chapter 9 with the Chemical Transmission at Nerve Endings, a topic which has been adequately dealt with in many recent reviews and which is advancing so rapidly that much of the material here presented is already out-dated. Chapter 10 on the Spinal Reflexes might well have been omitted since this has been so adequately discussed in the monograph by Creed, Sherrington et al., from which much of the material here presented is taken.

Chapter 11 deals with the Secretion of Urine. This again is a branch of physiology which is advancing rapidly and no general review can do the recent advances justice. Chapter 12, the last, deals with the Nervous Control of Micturition and Defecation.

It is becoming questionable as to whether a work of this sort really serves a useful purpose. The chapters in physiology which are advancing are doing so so rapidly that by the time such a work as this makes its appearance the more "recent advances" have made the work obsolete. Physiology is too large a subject to treat of recent advances in one small volume. The author of such a work has to pick and chose what topics he will deal with, thus excluding many recent advances. Volumes dealing with subdivisions of physiology have already been included in this series, for instance Endocrinology, Sex and Reproductive Physiology, Haematology, and others might profitably be added, on the Autonomic Nervous System, The Circulation and the Respiration.

HENRY LAURENS, Ph. D

Pediatric Nursing: By John Zahorsky, A. B., M. D., F. A. C. P. St. Louis. C. V. Mosby Co, 1936. Pp. 568. Price $3.00.

Pediatric Nursing is a complete reference book for nurses, presenting in clear and understand-

able terms the actual procedures of pediatric nursing. The second section will undoubtedly be helpful to the young pediatrician who is often in some doubt as to the actual detailed instructions to be given to his nurse. Older nurses will find this book an excellent means of bringing up-to-date their knowledge of the procedures of children's diseases.

Dr. Zahorsky stresses the necessity of a nurse being humane to her patients and understanding both the parents, the child and her own position in the home. Some will smile at his recommendation of a cradle in the home to lull the child to sleep. Perhaps he is right and we moderns may have to drop some of our ultra scientific concepticns of child care.

The Byrd-Dew and Sylvester methods of artificial respiration are recommended in the care of the new-born. Warning is given that the method should not be violent. The reviewer wishes that Dr. Zahorsky had omitted all such methods since the average person gets excited in his handling of the new-born, in his attempt to get the baby to breathe, and forgets the harm which may be done by violence in such cases. We see hemorrhage and rupture resulting from such violence.

Surely every nurse doing pediatric nursing will want this book.

SUZANNE SCHAEFER, M. D.

The Balanced Diet: By Logan Clendening, M. D. New York. D. Appleton-Century Co., 1936. Pp. 207. Price $1.50.

This is a splendid, simple, sound and succinct popular presentation of a topic of perennial interest, diet. Clendenning presents many interesting facts in connection with his discussion, that make interesting reading. The chapter on food fads is well done and should be recommended to all interested in this subject.

I. L. ROBBINS, M. D.

The Normal Diet and Healthful Living: By W. D. Sansum, M. D., R. A. Hare, M. D. & Ruth Bowden, B. S. New York. The Macmillan Co., 1936. Pp. 243. Price, $2.00.

This popular treatise on diet and personal hygiene is dedicated to those who would retain and regain good health. Simple, yet scientific, one wonders why another book on hygiene and diet should be published when so many equally as good already exist.

I. L. ROBBINS, M. D.

New Faces—New Futures: Rebuilding Character with Plastic Surgery, by Maxwell Maltz, M. D. New York. Richard R. Smith, 1936. pp. 315. Price $3.00.

The author means exactly what the title says—his subjoined remark "rebuilding character with plastic surgery" at once suggests the viewpoint of Dr. Maltz in this popular book intended to show the public the great boon of plastic surgery to mankind. There is nothing technical about the book and even the several surgical procedures presented are obviously more to impress upon the laity the comparative simplicity of the operations and the comparatively slight danger of complications resulting from them. It is an enjoyable volume and the author has a definite and worthwhile message for those afflicted by nature or man with facial or bodily disfigurements.

I. L. ROBBINS, M. D.

Surgical Clinics of North America: February, 1936. Philadelphia. W. B. Saunders Co., 1936. pp. 356.

This volume contains 21 articles written by men of great experience. It has no theory but is replete with the accumulated knowledge of years of practice.

Among its contents is a symposium on cancer of the cervix, which is most complete and opportune. The bulk, however, of the volume deals with orthopedic and neurologic surgery presented in a most straightforward manner. Other excellent surgical subjects are also discussed; their manner of presentation is concise yet finished.

The "Present Status of the Problem of Appendicitis" is written by one who was among the first to operate for appendicitis; the historical, as well as the clinical aspects are well worth reading.

M. LYON STADIEM, M. D.

Mechanics of Normal and Pathological Locomotion in Man: By Arthur Steindler, M. D., F. A. C. S. Iowa City, Iowa. Charles C. Thomas, 1936. pp. 424. Price $8.00.

With a thoroughness that is amazing, Professor Steindler has presented a comprehensive treatise on a subject which lately has received widespread attention. His very painstaking investigation and elaborate exposition of a most intricate function has dwarfed the laborious attempts of other writers. This work, his latest, ranks supreme, as does each of his previous efforts, and undoubtedly has reached the pinnacle of scientific research in the field of the study of locomotion.

There is no doubt but that this excellent volume will be the subject of many reviews and discussions, but its intricacy will be fully appreciated only by the erudite few.

Presenting his subject in a logical manner, Professor Steindler introduces each mathematic, kinetic, physical, anatomic and pathologic premise with a full explanation of every static and dynamic term, bringing each to a logical conclusion in the latter half of his book. In applying his

practical conclusions, he has made use of the body as a whole, taking into consideration the co-ordination of joint and muscle with the effect of gravitation.

The anatomic and physiologic studies of each joint, illustrated in profusion with countless diagrams, and the pathomechanics of bone and muscle are in themselves well worth the cost of the volume.

Mechanics of Normal and Pathological Locomotion in Man is a reference book supreme, and will prove invaluable to the orthopedist, anthropologist, biologist and physiologist for its mathematical precision, and to the well-grounded physician for its extreme practicability.

DUDLEY MARCUS STEWART, M. D.

The Specificity of Serological Reactions: By Karl Landsteiner, M. D. Baltimore, Charles C. Thomas. 1936. pp. 178. Price $4.00.

A review to date of the work of Karl Landsteiner will be warmly welcomed by all those interested in immunological problems. With the work of himself and his associates as a nucleus, the author builds up, more or less chronologically, the problems and present concepts of the specificity of natural antigens and antibodies. The work on artificial conjugated antigens and serological reactions with simple chemical compounds follows. Here the relationship of reactions to chemical structure is considered, particularly as demonstrated by work with azoproteins, the effects of the presence and position of acid groups and spatial relationships. The nature of hypersensitivity to substances of simple composition is discussed and evidence to demonstrate in some instances a probable conjugation of these products with proteins or other substances in the animal body is reviewed. Lastly, the more recent advances in the relationship of polysaccharides and lipoids to serological reactions are considered, particularly the work on the pneumococcus and other bacteria. Chemical aspects especially are emphasized.

The book is easily read and understood by those only mildly interested in the problems. Tables and data which might be confusing are reduced to a minimum. Results are given briefly and in an understandable fashion. A comprehensive bibliography adds further to the usefulness of the volume.

W. A. SODEMAN, M. D.

Sedwicks Principles of Sanitary Science and Public Health: Rewritten and enlarged by Samuel C. Prescott, Sc. D. and Murray P. Horwood, Ph. D., N. Y., The MacMillan Company, 1935. pp. 654. Price $4.50.

The editors of this revised edition of an established work have maintained the scope of the original and enlarged its subject matter. The emphasis on the organized control of the environment which Sedwick adopted as the scope of his work is kept by the editors of this edition, and rightly so. Although a few pages in the beginning are devoted to definitions and introductory remarks which show the position and limitations of sanitary science in the whole field of medicine, the greater part of the book is an expansion on the theme of environmental control. As a result, the editors have categorically considered in a limited space, all current thoughts and activities in community hygiene. This they have done in a pleasing narrative sort of way. Apparently for the sake of non-medical readers, they have discussed the outstanding medical facts about the chronic diseases which they consider.

The book is well composed and suited to the Sanitary Officer who seems to be the principle audience in the mind of the authors. It is too limited in detail to be a source of reference to the medical sanitarian or public health worker who must go more deeply into his subjects. As a matter of fact there are a bare 50 bibliographic references in the whole 600 pages of the book.

W. H. PERKINS, M. D.

PUBLICATIONS RECEIVED

The Macmillan Company, New York: The Art of Treatment by W. R. Houston, A. M., M. D., F. A. C. P.

P. Blakiston's Sons & Company, Philadelphia: The Relief of Pain by Harold Balme, M. D.

W. P. Saunders Company, Philadelphia: Minor Surgery by Frederick Christopher, S. B., M. D., F. A. C. S. The Eye and Its Diseases by Conrad Berens, M. D. Endocrinology in Modern Practice by William Wolf, M. D., M. S., Ph. D.

The Williams & Wilkins Press, Baltimore: Time of Ovulation in Women by Carl G. Hartman.

The Livingston Press, New York: Heart Disease and Tuberculosis by Adolphus Knopf, M. D.

J. B. Lippincott Company, Philadelphia: Disability Evaluation by Earl D. McBride, B. S., M. D., F. A. C. S.

The John Hopkins Press, Baltimore: On Percussion of the Chest by John Forbes, M. D.

The C. V. Mosby Company, St. Louis: Theory and Practice of Psychiatry by William S. Sadler, M. D.

Certified Milk, Proceedings of the American Association of Medical Milk Commissions, Inc.

Dr. J. F. Montague, New York: Why Bring That Up?

American Can Company, New York: Facts About Commercially Canned Foods.